

Nos. 23-2298, 23-2354

IN THE
United States Court of Appeals
FOR THE FEDERAL CIRCUIT

VLSI TECHNOLOGY LLC,
Appellant,

v.

PATENT QUALITY ASSURANCE LLC,
Cross-Appellant,

INTEL CORPORATION,
Appellee,

KATHERINE K. VIDAL, Under Secretary of Commerce for Intellectual
Property and Director of the United States Patent and Trademark Office
Intervenor.

On Appeal from the United States Patent and Trademark Office,
Patent Trial and Appeal Board, No. IPR2021-01229

**NON-CONFIDENTIAL OPENING BRIEF FOR
APPELLANT VLSI TECHNOLOGY LLC**

Kenneth J. Weatherwax
Nathan Nobu Lowenstein
LOWENSTEIN & WEATHERWAX LLP
1016 Pico Boulevard
Santa Monica, CA 90405
(310) 307-4500

Jeffrey A. Lamken
Counsel of Record
Lucas M. Walker
Rayiner Hashem
MOLOLAMKEN LLP
The Watergate, Suite 500
600 New Hampshire Avenue, N.W.
Washington, D.C. 20037
(202) 556-2000
jlamken@mololamken.com

Counsel for Appellant VLSI Technology LLC
(Additional Counsel Listed on Inside Cover)

Alan J. Heinrich
Dominik Slusarczyk
IRELL & MANELLA LLP
1800 Avenue of the Stars, Suite 900
Los Angeles, CA 90067
(310) 277-1010

Jordan Rice
Thomas P. Schubert
MOLOLAMKEN LLP
300 N. LaSalle Street, Suite 5350
Chicago, IL 60654
(312) 450-6700

Babak Redjaian
IRELL & MANELLA LLP
840 Newport Center Drive, Suite 400
Newport Beach, CA 92660
(949) 760-0991

Counsel for Appellant VLSI Technology LLC

REPRESENTATIVE PATENT CLAIM AT ISSUE ON APPEAL

U.S. Patent No. 7,523,373, Claim 1

A method, comprising:

- [a] providing an integrated circuit with a memory;
- [b] operating the memory with an operating voltage;
- [c] determining a value of a minimum operating voltage of the memory;
- [d.1] providing a non-volatile memory (NVM) location;
- [d.2] storing the value of the minimum operating voltage of the memory in the NVM location;
- [e] providing a functional circuit on the integrated circuit exclusive of the memory;
- [f] providing a first regulated voltage to the functional circuit;
- [g] providing a second regulated voltage, the second regulated voltage is greater than the first regulated voltage;
- [h] providing the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the value of the minimum operating voltage; and
- [i] providing the second regulated voltage as the operating voltage of the memory when the first regulated voltage is less than the value of the minimum operating voltage,
- [j] wherein while the second regulated voltage is provided as the operating voltage of the memory, the first regulated voltage is provided to the functional circuit.

Appx280(13:7-28).

FORM 9. Certificate of Interest

Form 9 (p. 1)
March 2023

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CERTIFICATE OF INTEREST

Case Number 2023-2298, 2023-2354

Short Case Caption VLSI Technology LLC v. Patent Quality Assurance LLC

Filing Party/Entity VLSI Technology LLC

Instructions:

1. Complete each section of the form and select none or N/A if appropriate.
2. Please enter only one item per box; attach additional pages as needed, and check the box to indicate such pages are attached.
3. In answering Sections 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance.
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Date: 07/10/2024

Signature: /s/ Jeffrey A. Lamken

Name: Jeffrey A. Lamken

FORM 9. Certificate of Interest

Form 9 (p. 2)
March 2023

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	2. Real Party in Interest. Fed. Cir. R. 47.4(a)(2).	3. Parent Corporations and Stockholders. Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. <input checked="checked" type="checkbox"/> None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. <input type="checkbox"/> None/Not Applicable
VLSI Technology LLC		CF VLSI Holding LLC

☐ Additional pages attached

FORM 9. Certificate of Interest

Form 9 (p. 3)
March 2023

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

☐ None/Not Applicable ☐ Additional pages attached

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Parham Hendifar Lowenstein & Weatherwax LLP	Patrick Maloney Lowenstein & Weatherwax LLP *No longer with firm	Jason C. Linger Lowenstein & Weatherwax LLP *No longer with firm

5. Related Cases. Other than the originating case(s) for this case, are there related or prior cases that meet the criteria under Fed. Cir. R. 47.5(a)?

☒ Yes (file separate notice; see below) ☐ No ☐ N/A (amicus/movant)

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6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

☒ None/Not Applicable ☐ Additional pages attached

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CONFIDENTIAL MATERIAL OMITTED

Material has been omitted from this brief consistent with the protective order entered in the United States Patent and Trademark Office below, the Director’s filing of certain orders under seal, and the Director’s orders that certain documents remain under seal. The material omitted on pages 8 and 12 refers to or quotes from communications between VLSI and PQA relevant to the Director’s sanctions determinations that PQA designated as confidential under the protective order and the Director redacted from the public docket in her sanctions decisions. The material

omitted on pages i, 14, 15, 21, 31, and 32 refers to or quotes from a report sent to the PTO as well as filings and orders related to the report, which the Director filed (or required to be filed) under seal.

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STATEMENT OF RELATED CASES

Cross-appellant Patent Quality Assurance LLC, the petitioner in the underlying IPR, previously filed a petition for a writ of mandamus in this Court. *In re Patent Quality Assurance LLC*, No. 23-118. The petition was voluntarily dismissed before a decision issued. *See* No. 23-118, Dkts. 26, 28.

The Court's decision in this appeal may directly affect or be directly affected by the following pending cases: *VLSI Technology LLC v. Intel Corp.*, No. 6:21-cv-00057 (W.D. Tex.); *VLSI Technology LLC v. Intel Corp.*, No. 6:21-cv-00299 (W.D. Tex.); *VLSI Technology LLC v. Intel Corp.*, No. 6:19-cv-000977 (W.D. Tex.); and *VLSI Technology LLC v. Intel Corp.*, No. 22-1906 (Fed. Cir.) (remanded to the district court in No. 6:21-cv-00057 (W.D. Tex.)).

INTRODUCTION

Created just after VLSI won a large infringement verdict against Intel, the IPR petitioner here—“Patent Quality Assurance LLC” (PQA)—exists solely to challenge the patents underlying that judgment. The PTO Director found PQA pursued its IPR *not* to promote “patent quality,” but to *extort* VLSI. She found PQA engaged in abuses of process—defying discovery orders, giving misleading and evasive responses to Director interrogatories, and thwarting all inquiry into the identity of its members, backers, and purposes—that made it impossible to determine who is actually behind PQA. For that misconduct, the Director initially ordered PQA dismissed, while allowing *Intel*, which was time-barred from seeking IPR itself and had abandoned its invalidity defense in district court, to proceed as sole petitioner.

The Director then reinstated PQA—*not* because she found dismissal unwarranted, but to moot PQA’s frivolous argument that dismissal immunized it from further sanctions. The Director ultimately issued PQA only a “strong admonishment” and “warning not to repeat” its misconduct. But that “sanction” was no sanction at all, given that PQA has no purpose beyond this IPR and the misconduct being sanctioned *prevented* the Director from knowing *who PQA actually is*.

The Director’s non-sanction was the culmination of multiple failures of reasoned decisionmaking. In refusing to terminate the IPR, the Director borrowed a “compelling-merits” standard used for coordinating parallel proceedings. But she

never explained why that standard makes sense for misconduct. She then treated “compelling merits” as a reason to proceed despite PQA’s abuse of process, when the very authority from which she drew the “compelling-merits” standard states that abuse of process is reason to deny an IPR *even if a petition has compelling merits*. When ultimately selecting sanctions, the Director purported not to make findings about PQA’s motives. But she *already* had found PQA’s goal was extortion, a finding she never questioned or withdrew. And agencies cannot deny relief by arbitrarily refusing to make—or acknowledge—critical findings.

Further legal errors permeated this IPR. The Director allowed Intel to join this IPR, and later declined to terminate the IPR *because* Intel was a party. But Intel was never a proper party. A party can be joined to another IPR only if it “properly files” its own petition. 35 U.S.C. § 315(c). But the petition underlying Intel’s joinder concededly was filed outside the time limit for Intel to seek IPR. Precedent and § 315’s history make clear that *untimely* petitions are *not* “properly filed.” And Intel, an adjudicated infringer, was further barred by common-law claim preclusion. *Nasalok Coating Corp. v. Nylok Corp.*, 522 F.3d 1320, 1340 (Fed. Cir. 2008). The PTAB did not come close to demonstrating the “evident” congressional intent needed to jettison that core common-law principle.

The departures from statutory text continued. Under § 311(b), patents may be challenged in IPRs “*only* on the basis of prior art consisting of *patents or printed*

publications.” This Court has consistently held that references are not prior-art “printed publications” unless they were publicly accessible before the critical date. *In re Cronyn*, 890 F.2d 1158, 1160 (Fed. Cir. 1989). The PTAB defied that precedent, finding unpatentability based on “Abadeer,” an abandoned application that was undisputedly *not* publicly accessible before the critical date.

The PTAB also abdicated its obligation to *explain* its findings. Unable to identify critical limitations in the prior art, it summarily announced that skilled artisans would have made multiple, complex modifications to add them. And rather than analyze the evidence, the PTAB merely stated that it agreed with the petitioner. Reasoned decisionmaking requires more—on all fronts. This Court should reverse.

JURISDICTIONAL STATEMENT

The PTAB asserted jurisdiction under 35 U.S.C. §§ 314, 318(a). It issued a final written decision on June 13, 2023. Appx165-99. VLSI appealed on August 14, 2023. Appx2813-19; § 142; 37 C.F.R. § 90.3(a)(1). The Director issued a final sanctions decision on December 13, 2023. Appx254-69. VLSI filed an amended notice of appeal on February 9, 2024. Appx2997-3003; ECF #38. This Court has jurisdiction under 28 U.S.C. § 1295(a)(4)(A) and 35 U.S.C. §§ 141(c), 319.

ISSUES PRESENTED

1. Whether the Director’s sanctions rulings, including refusal to terminate the IPR, were arbitrary, capricious, contrary to law, or otherwise inconsistent with reasoned decisionmaking.
2. Whether Intel was improperly joined because (a) its IPR petition was untimely and thus not “properly file[d],” 35 U.S.C. § 315(c); or (b) claim preclusion bars it from collaterally attacking the infringement judgment.
3. Whether the PTAB’s obviousness rulings must be set aside because they are (a) based on a reference that is not a prior-art “patent” or “printed publication”; or (b) unsupported by substantial evidence or reasoned decisionmaking.

STATEMENT OF THE CASE

I. VLSI’S PATENTED POWER-SAVING TECHNOLOGY

This case involves VLSI’s ’373 patent (U.S. Patent No. 7,523,373). Developed by engineers at Freescale Semiconductor (a Motorola spin-off), the invention reduces power usage in computer processors. Appx270(abstract).

Prior-art integrated circuits (“ICs”) typically used the same voltage for the entire IC, including memory. Appx274(2:1-15). Memory, however, typically requires a higher minimum voltage than “functional” (computation or logic) circuits. Appx274(2:5-10); Appx276(6:19-21). The entire IC—including functional circuits that could work at lower voltages—thus operated at or above the memory’s “mini-

minimum operating voltage.” That wasted power, because the entire IC had to stay at higher voltages than many components required. Appx274(2:1-16); Appx8566(¶20).

The ’373 patent addresses that problem by allowing the voltage supplied to functional circuits to be reduced *below* memory’s minimum operating voltage, while still supplying sufficient voltage to memory. It first teaches determining or characterizing an IC memory’s “minimum operating voltage,” and storing that value on the IC. Appx274(2:23-29). Limitations 1[c], 1[d.1], and 1[d.2] of claim 1 recite:

- [c] determining a value of a minimum operating voltage of the memory;
- [d.1] providing a non-volatile memory (NVM) location; [and]
- [d.2] storing the value of the minimum operating voltage of the memory in the NVM location.

Appx280(13:10-14); *see* Appx280(13:61-64) (claim 9: “memory is characterized as having a minimum operating voltage” and a “value representative of the minimum operating voltage” is “store[d]” on IC).

During operation, the minimum operating voltage serves as a threshold for switching memory between two power supplies: the “first regulated voltage” (“VDDlogic” in one embodiment) and the “second regulated voltage” (“VDDmem” in one embodiment). Appx280(13:17-28); *see* Appx275(3:15-26). Normally, as in the prior art, memory and functional circuits receive the same voltage—the first regulated voltage—which is “scaled” up or down based on performance demands. Appx275(3:30-35); Appx280(13:15-22).

In the invention, however, the first regulated voltage can be “scaled to a voltage that is *below* [memory’s] minimum operating voltage.” Appx275(3:34-36) (emphasis added). When the first regulated voltage crosses that threshold, a “power supply selector” switches the memory’s power supply to the second regulated voltage, which remains above memory’s minimum operating voltage. Appx280(13:23-27); Appx275(3:30-44); Appx278(10:19-28); Appx7015-17(¶¶ 16-20). Functional circuits continue to receive the lower first regulated voltage. Appx280(13:27-28); Appx271; Appx7016(¶ 19). Conversely, when the first regulated voltage increases “[to] or above [the] minimum [operating] voltage,” the memory power supply switches back to the first regulated voltage. Appx276(6:58-60); Appx280(13:20-22, 14:8-13). The invention thus saves power by enabling functional circuits to enter a lower-voltage, power-saving state, while memory still receives sufficient voltage to avoid data loss. Appx274(2:1-9); Appx275(3:35-44); Appx275(4:38-41); Appx7014-15(¶¶ 14-16); Appx7017(¶ 20).

Limitations 1[h], 1[i], and 1[j] thus recite:

- [h] providing the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the value of the minimum operating voltage; and
- [i] providing the second regulated voltage as the operating voltage of the memory when the first regulated voltage is less than the value of the minimum operating voltage,

[j] wherein while the second regulated voltage is provided as the operating voltage of the memory, the first regulated voltage is provided to the functional circuit.

Appx280(13:20-28); *see* Appx280(14:8-15) (claim 9: “power supply selector”).

II. VLSI OBTAINS A VERDICT AGAINST INTEL—AND PQA IS CREATED TO CHALLENGE THE PATENT

A. This Court Affirms the Infringement Verdict Against Intel After Intel Unsuccessfully Seeks IPR and Abandons Invalidity Defenses

In April 2019, VLSI sued Intel for infringing the ’373 patent (and another patent, the ’759). Appx9539. Intel raised an obviousness defense and counterclaim. Appx7076-77; Appx9539.

Intel sought IPR of the ’373 patent in November 2019, raising grounds it had asserted in district court. Appx203; *Intel Corp. v. VLSI Tech. LLC*, IPR2020-00158, Paper 3 (Nov. 22, 2019); Appx8338-69; Appx7076-77. The PTAB denied Intel’s petition, noting Intel was raising the same challenges in court. Appx203.

On the eve of trial, Intel abandoned any validity challenge to the ’373 patent in district court. Appx7070. In March 2021, the jury found that Intel infringed claims 1, 5, 6, 9, and 11 of the ’373 patent and awarded VLSI \$1.5 billion in damages. Appx4814-22; Appx9539-40. The district court entered final judgment against Intel, including on its invalidity counterclaim. Appx9539-41. On appeal, Intel did not challenge rejection of the counterclaim. This Court affirmed with respect to infringement of the ’373 patent (while finding the ’759 patent not infringed).

VLSI Tech. LLC v. Intel Corp., 87 F.4th 1332, 1335, 1341-45 (Fed. Cir. 2023). It vacated the damages award and remanded for a “new trial limited to damages.” *Id.*

B. PQA Is Created To Challenge the Patents Asserted Against Intel

Shortly after the jury’s verdict, PQA was formed as a South Dakota LLC. Appx7120-22. PQA has no business activities, makes no products, and has never been accused of infringement. Appx1663-64; Appx228-29; Appx234; Appx1110. PQA refused to disclose who is behind it, stonewalling the Director’s discovery efforts. *See* pp. 11-12, *infra*. Soon after formation, PQA filed an IPR petition challenging the ’373 patent. Appx1001-84. PQA’s petition was a near-carbon-copy of Intel’s unsuccessful 2019 petition, down to the expert declaration. Appx205; Appx8338-69 (comparison).

PQA professed to promote “the integrity of the patent system.” Appx1008; Appx1169. In reality, PQA used its IPR to “shake VLSI down.” Appx1105; Appx1110, Appx1118. As the Director found, PQA demanded at least dollar amount, then dollar amount, to settle with VLSI, and threatened “party communication party communication.” Appx233 (citing Appx9492-93, Appx9475); *see* Appx92; Appx9469-71. It made good on that threat—while still professing it cared only for the “integrity of the patent system.” *Patent Quality Assurance, LLC v. VLSI Tech., LLC*, IPR2022-00480, Paper 2 at 2-3 (Jan. 24, 2022).

The Director at one point found “the sole reason PQA filed the Petition was for the improper purpose of extracting money from”—“extorting”—“VLSI.” Appx98, Appx103. But PQA’s defiance of discovery orders made it impossible “to verify” PQA’s true motives. Appx77; *see* Appx86; Appx97-98; Appx229; Appx237. PQA may have pursued this IPR for other improper reasons, *e.g.*, as a front for Intel, which was time-barred from seeking IPR itself. *See* Appx2020; Appx1629; Appx1631.

PQA was not the only (or even first) mysterious challenger to appear following the Intel verdict. OpenSky Industries, LLC was formed a month after the verdict to file IPRs challenging the ’373 and ’759 patents. Appx204-05; *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102 at 6-9 (PTAB Oct. 4, 2022). Like PQA’s, OpenSky’s (earlier-filed) petitions were near-carbon-copies of Intel’s 2019 petitions, including expert reports. Appx204. OpenSky’s IPR was instituted only as to the ’759 patent. *See* p. 13, *infra*. As with PQA, the Director found OpenSky acted to “extort” VLSI, but allowed the IPR to continue. *OpenSky*, IPR2021-01064, Paper 102 at 43-44; *id.*, Paper 121 at 5-9. That IPR is the subject of appeal No. 23-2158.

III. PROCEEDINGS BELOW

A. The PTAB Institutes PQA's IPR and Joins Intel as a Party

In January 2022, the PTAB instituted PQA's IPR of the '373 patent. Appx1200-25. On January 26, 2022—nearly three years after being sued for infringement—Intel filed its second IPR petition challenging the patent, requesting joinder to PQA's IPR. Appx202; Appx12080.

Over VLSI's opposition, Appx12107-28; Appx1392-1417; Appx1646-47, the PTAB joined Intel, following PTAB precedent holding that parties with untimely IPR petitions may be joined to another petitioner's IPR. Appx1-22; Appx43-45; Appx146-52; *see* Appx12113, Appx12115-16, Appx12126; *Proppant Express Invs., LLC v. Oren Techs., LLC*, IPR2018-00914, Paper 38 at 16-19 (PTAB Mar. 13, 2019) (then-precedential; since de-designated). The Director agreed Intel could be joined despite being time-barred. Appx208; Appx63; Appx102-03.

The PTAB also refused to terminate Intel as claim-precluded. Appx153-64; *see* Appx2191-2219. Claim preclusion bars adjudicated infringers from using another proceeding as “‘a collateral attack on the first judgment.’” Appx2203 (quoting *Nasalok Coating Corp. v. Nylok Corp.*, 522 F.3d 1320, 1324 (Fed. Cir. 2008)); *see* Appx2205-11. But the PTAB declared that Congress implicitly abrogated common-law claim preclusion in IPRs. Appx155-61.

B. The Director Finds PQA Abused the IPR Process—But Issues Only an Admonishment

1. *PQA Defies the Director’s Discovery Orders*

In June 2022, the Director ordered inquiry into whether PQA had committed “abuse of process,” including by using its IPR to extort VLSI. Appx27-28, Appx30-31; *see* Appx23-36; Appx1252-55. The Director ordered PQA to answer interrogatories and produce documents regarding its ownership, funding, and purpose; entities with an “interest in PQA or any of its activities”; PQA’s relationship with Intel; PQA’s communications with VLSI; and whether PQA’s conduct “thwarts” the IPR system’s goals. Appx29-33; Appx225-39.

The Director found PQA flouted those orders. Its responses were “deficient,” “misleading,” “evasive,” “not responsive,” “unsubstantiated,” and lacking “sufficient evidence to allow [the Director] to evaluate PQA’s answers.” Appx215-42; Appx74-87. For example:

- PQA refused to answer interrogatories about its members and “the purpose for which PQA was formed.” Appx228-29.
- PQA’s response to interrogatories about “‘other real parties in interest’” was “not responsive” and failed to “provide sufficient evidence to allow [the Director] to evaluate PQA’s answer.” Appx236-37.
- The representative PQA identified as able to verify the absence of other real parties in interest refused to answer any questions about PQA’s members. Appx1626; Appx1670-71.

- When asked whether PQA was “‘formed to extort money,’” PQA’s representative said “‘he was ‘not authorized to speak to’” that. Appx2024-25.
- PQA defied an order to provide “‘all documents relating to PQA’s business plan.’” Appx236-37.
- PQA gave “deficient” responses about communications with VLSI that “omitted” PQA’s payment “ [redacted] party communication [redacted] ” and threats to “ [redacted] .” Appx232-35.

PQA’s discovery violations prevented creation of a “complete record to fully examine” PQA’s actions. Appx86. PQA, the Director found, “fail[ed] to respond in good faith” and “attempt[ed] to subvert answering” the Director’s interrogatories. Appx225, Appx235-36, Appx239, Appx241.

2. *The Director Finds Sanctions Necessary*

In December 2022, the Director found PQA had committed “an abuse of the IPR process.” Appx103; Appx51-53. PQA “refuse[d] to disclos[e] its members” or explain “the purpose for which PQA was formed.” Appx77. Nor did it “provide any required supporting evidence that would allow” the Director and parties “to verify” PQA’s assertion that it sought only to “ensur[e] patent quality”—or “to evaluate” whether PQA was a front for some undisclosed entity. Appx77, Appx82-83.

PQA “failed to offer a verifiable, legitimate basis for filing its IPR petition.” Appx103. The record showed PQA had demanded [redacted] dollar amount [redacted] from VLSI and threatened another IPR if VLSI did not pay—facts PQA withheld from the Director. Appx53; Appx79-80. Drawing adverse inferences, the Director found

that PQA pursued this IPR for “the improper purpose of extracting money from VLSI”—of “extorting” VLSI. Appx98, Appx103; *see* Appx94-104.

The Director also found PQA was “misleading” and made “misrepresentations.” Appx52, Appx102. For example, PQA had thwarted OpenSky’s earlier-filed petition challenging the ’373 patent by “false[ly]” representing that it exclusively retained the expert on which both copycat petitions relied. Appx52; Appx93, Appx100-02; *see* Appx58-61.

PQA, the Director found, committed “abuses of process.” Appx103. “Each aspect of PQA’s conduct” was “sanctionable.” Appx53. “Taken together,” they made sanctions “necessary.” Appx53.

3. *The Director Refuses To Terminate the IPR But Dismisses PQA—Leaving Intel in Charge—Only To Reinstate PQA*

The Director refused VLSI’s request to “terminat[e]” the IPR as a “sanction.” Appx1632-47. Instead, she ruled, the supposedly “compelling merits” of PQA’s petition trumped abuse of process and improper purpose. Appx107-11. She dismissed *PQA* from the proceeding (retaining jurisdiction over sanctions), but let the IPR proceed with *time-barred Intel* as “sole Petitioner.” Appx106.

After initially seeking reconsideration, PQA announced it would no longer participate because, it asserted, its dismissal deprived the Director of authority to impose further sanctions. Appx2529. The Director did not find PQA’s objection correct, but nonetheless reinstated PQA to moot the objection. Appx127.

4. *The Director Bars Discovery into* [redacted] allegation
[redacted] allegation

Shortly after the Director found sanctionable misconduct, [redacted] government official

[redacted] government official Senate Judiciary Committee's [redacted] government office

[redacted] forwarded the PTO a "[redacted] allegation

[redacted] allegation'" in this IPR. Appx11077; see Appx11078-119. The [redacted] page count report asserted that [redacted] allegation

[redacted] allegation. Appx11078.

The report asserted [redacted] allegation

[redacted] allegation. Appx11082-119. Those included [redacted] allegation

[redacted] allegation, as well as [redacted] allegation

[redacted] allegation. Appx11098-

99. The report alleged [redacted] allegation

[redacted] allegation.

Appx11085-86, Appx11093-96, Appx11091-107.

The report was clearly relevant to the Director's sanctions inquiries, including the [redacted] allegation. Appx2568-70; Appx11127-28. Despite issuing [redacted] allegation

[redacted] allegation [redacted] the report. Appx11120.¹

A PTO paralegal ruled the agency would not consider the report. Appx130-31. VLSI sought rehearing. PQA's discovery violations had deprived the Director and parties of a "complete record" of PQA's [redacted] allegation [redacted]. Appx11128 (quoting Appx86). Discovery informed by [redacted] allegation [redacted], VLSI explained, [redacted] allegation [redacted]. Appx2568-70. The Director denied rehearing. Appx141-42. She nominally authorized VLSI to move for discovery, but ordered that any motion could "not rely on information from" the report. Appx140-41. That put VLSI "[redacted] allegation [redacted]." Appx2597. The report's [redacted] allegation [redacted] [redacted] allegation [redacted]. Appx2597-98. But the Director's [redacted] allegation [redacted] [redacted] allegation [redacted]. Appx2597-98.

5. *The Director Reaffirms that PQA Committed Misconduct*

In August 2023, the Director issued another order. She again found that PQA engaged in "sanctionable conduct." Appx201. And she affirmed that PQA violated discovery orders and made misrepresentations. Appx225-49.

¹ PQA later asserted the [redacted] allegation [redacted] Appx11129. But that assertion was based on a website indicating [redacted] allegation [redacted] [redacted] allegation [redacted]. Appx11129. The [redacted] allegation [redacted] alleged that some [redacted] allegation [redacted] Appx11105.

The Director identified no error in her earlier findings, in the December 2022 order, that PQA pursued this IPR “to extort” VLSI and committed “abuses of process.” Appx103-04; *see* Appx97. But the August 2023 order indicated the Director would not address PQA’s “motive” because of the supposed “compelling merits” of PQA’s petition. Appx236(n.25); Appx242(n.29). The Director ordered briefing on whether PQA should be “reprimanded or admonished” and/or “ordered to pay compensatory expenses.” Appx250-51.

6. *The Director Admonishes PQA*

On December 13, 2023, the Director issued her final sanctions decision. Appx254-69.² The Director reaffirmed that “PQA’s conduct undermined the ability of the Office faithfully to administer the AIA system.” Appx264. Despite previously finding PQA’s misconduct so severe as to warrant PQA’s dismissal, Appx106; p. 13, *supra*, the only “sanction” the Director imposed was a “strong admonishment to PQA” and “warning not to repeat this conduct in the future.” Appx255. The Director did not explain how that admonishment and warning meant anything when PQA lacks any purpose beyond this IPR and, thanks to PQA’s stonewalling, no one knows who is behind it.

² In the meantime, VLSI had appealed from the PTAB’s final written decision, issued in June 2023. Appx165-99. The appeal was stayed pending completion of sanctions proceedings. ECF #27.

Denying VLSI attorney’s fees, the Director declared that “VLSI did not suffer notable harm” from the limited aspects of PQA’s misconduct—discovery violations and misrepresentation—she was willing to consider. Appx263. Without explanation, she announced she would “not reach VLSI’s additional arguments for compensatory expenses,” Appx263-65(& n.8), including that fees were warranted based on PQA’s improper purpose and for deterrence, Appx2877-82.

C. The PTAB Finds Unpatentability Based on the Abadeer Reference

The PTAB’s final written decision found all challenged claims (claims 1-16) obvious, relying on a combination of Abadeer, Harris, and Zhang. Appx165-97.

1. The PTAB Deems Abadeer a Prior-Art “Printed Publication”

The PTAB relied on “Abadeer” as disclosing determining and storing memory’s minimum operating voltage, as limitations 1[c], 1[d.1], and 1[d.2] require. Appx173-74; *see pp. 19-20, infra*. Abadeer, however, is an abandoned patent application published after the ’373 patent’s filing date. Appx1353.

Patents may be challenged in IPR “only on the basis of prior art consisting of [1] patents or [2] printed publications.” 35 U.S.C. § 311(b). Abadeer was not a proper basis for this IPR, VLSI explained, because it was neither. Appx1351-56. It never issued as a “patent.” Nor was it a prior-art “printed publication.” A reference is a “‘prior-art “printed publication”’” only if it “‘was made “sufficiently accessible to the public interested in the art” before the critical date.’” Appx1355 (quoting

Voter Verified, Inc. v. Premier Election Sols., Inc., 698 F.3d 1374, 1380 (Fed. Cir. 2012)). Abadeer was *not* publicly accessible before the critical date: The '373 patent's critical date is no later than its August 30, 2006 filing date, Appx270, whereas Abadeer was not published until November 16, 2006, Appx4132.

The PTAB nowhere denied that Abadeer became publicly accessible only after the critical date. It held Abadeer a prior-art printed publication nonetheless, citing a nonprecedential decision that “did not consider” the issue. Appx191-93.

2. *The PTAB's Decision: Claim 1*

Harris. For limitations 1[a]-[b] and 1[e]-[j] of claim 1, the PTAB relied on Harris (U.S. Patent No. 5,867,719), which addresses “soft defect detection testing (SDDT)” of memory. Appx4127(1:25-35). Harris discloses an IC where the power supply to memory can be isolated to facilitate detecting memory defects. Appx4128(4:25-58). A “switching circuit” receives a “first supply voltage” (*e.g.*, “VDD”) and a “second supply voltage” (*e.g.*, “Vstby”). Appx4127(2:3-7). Normally, the entire IC is supplied by VDD. Appx4128(3:1-3). In “test mode,” however, the memory is switched to “the Vstby terminal” to facilitate defect-testing. Appx4128(3:15-36). Harris's switching circuit does *not* switch the memory power supply based on memory's minimum operating voltage, as limitations 1[h] and 1[i] require. Appx280(13:20-25). Instead, Harris's “CPU” executes a software com-

mand to switch power supplies “[w]hen an array current test needs to be performed.” Appx4128(3:10-13).

In one sentence, Harris suggests that test mode can be used “as a low power feature”: In response to a software command, the memory’s power is switched to Vstby; then, VDD “is lowered so that” the IC consumes “lower power.” Appx4128-29(4:65-5:3). Harris also passingly discloses a “hardware controlled” “failure mode,” where the memory power supply is switched to “Vstby” when a power “failure is detected on the VDD pin.” Appx4128(3:53-67).

Harris nowhere mentions minimum operating voltage. The PTAB identified nothing in Harris—or elsewhere—disclosing the minimum operating voltage serving as a threshold for switching back-and-forth between memory power supplies, as the ’373 patent requires. *See* pp. 5-6, *supra* (limitations 1[h] and 1[i]). The PTAB nonetheless concluded it would have been obvious to combine—then further modify—Harris’s low-power mode and failure mode to arrive at those features. Appx177-78. The only motivation to combine it identified was a generic motivation to save power. Appx176.

Zhang. The parties disputed whether Harris discloses “regulated” voltages; the PTAB found Zhang supplied that limitation regardless. Appx183-84.

Abadeer. Harris concededly does not disclose *determining* a memory’s minimum operating voltage and *storing* that value, as limitations 1[c], 1[d.1], and 1[d.2]

require. Appx174; *see* p. 5, *supra*. To fill that gap, the PTAB invoked Abadeer’s “Built-In Self Test.” Appx173-74, Appx185.

3. *The PTAB’s Decision: Claims 2-16*

The PTAB found claims 2-7, 9-11, and 13-16 obvious over Abadeer, Harris, and Zhang; claims 2, 11, and 12 obvious over those references plus Cornwell; and claim 8 obvious over Abadeer, Harris, Zhang, and Bilak. Appx194-95. The PTAB did not discuss those claims’ additional limitations, the teachings of Cornwell and Bilak, or why skilled artisans would find it obvious to combine the references to produce the claimed inventions. The PTAB merely stated that VLSI “d[id] not dispute” PQA’s arguments, without explaining why PQA’s arguments were sound. Appx194-95.

SUMMARY OF ARGUMENT

I. The Director found PQA committed egregious misconduct, including flouting Director orders and using this IPR to *extort* VLSI. Yet her only “sanction” was an admonishment and warning not to do it again. The Director’s sanctions decisions were arbitrary, capricious, and inconsistent with reasoned decisionmaking.

A. The Director refused to terminate the IPR, despite PQA’s abuse of process, based on a “compelling-merits” standard drawn from a memorandum addressing parallel patent proceedings. The Director never explained why that standard should govern sanctions for misconduct. The memorandum the Director professed

to apply, moreover, makes abuse of process reason to deny an IPR *despite compelling merits*. The Director, without explanation, turned that upside-down—treating “compelling merits” as reason to proceed *despite abuse of process*.

The Director never explained how her chosen sanction would deter and punish PQA’s misconduct. She asserted a public interest in patent challenges, but never explained why that required countenancing PQA’s misconduct or giving Intel a third bite at challenging VLSI’s patent. She departed from agency practice without adequate explanation. And she arbitrarily blocked discovery into allegations that [REDACTED] allegation [REDACTED].

B. The Director’s August 2023 order professed to make no findings regarding PQA’s motives. But her earlier, December 2022 order refusing to terminate the IPR found PQA committed an abuse of process and sought to extort VLSI. The Director never said those findings were incorrect. She could not abandon them without reasoned explanation. Nor could she simply refuse to consider PQA’s improper motives and abuse of process; they are central to sanctions.

The Director was authorized to terminate the IPR as a sanction. Her refusal is subject to review. If she failed to appreciate the scope of her authority, that would require vacatur. And her reinstatement of PQA, to moot PQA’s frivolous argument that its dismissal barred further sanctions, was arbitrary.

C. The Director abused her discretion by issuing no meaningful sanction. Her “strong admonishment” and “warning” not to repeat misconduct were meaningless: PQA has no business outside this IPR, and its misconduct ensured *nobody knows who PQA is*. The arbitrary refusal to consider PQA’s motives and the full scope of harm to VLSI likewise requires reversal.

II. A. A party may be joined to an IPR only if it “properly files” its own petition. 35 U.S.C. § 315(c). That requires a *timely* petition. Intel’s petition was *untimely*. Because Intel’s petition was not “properly file[d],” joinder was improper. Intel’s joinder was prejudicial: The Director refused to terminate the IPR *because* Intel was a party.

B. Common-law claim preclusion bars adjudicated infringers like Intel from using later proceedings to collaterally attack infringement judgments. Nothing in the IPR statute demonstrates the “evident” intent needed to abrogate common-law preclusion.

III. The PTAB’s unpatentability determinations cannot be sustained.

A. IPR can proceed “only on the basis of prior art consisting of patents or printed publications.” § 311(b). The Abadeer reference concededly is not a prior-art “patent.” Nor is it a prior-art “printed publication.” A prior-art printed publication must be publicly accessible before the critical date. Abadeer—an abandoned

application published *after* the critical date—was not. All the PTAB’s unpatentability determinations rest on Abadeer and must be reversed.

B. The PTAB failed to identify evidence that limitations 1[h] and 1[i] existed in the prior art, or reason to conclude that skilled artisans would make the modifications needed to produce the invention. Rather than explain its findings and evidence supporting them, the PTAB repeatedly declared it agreed with PQA, without explaining *why*—an approach precedent forbids.

ARGUMENT

I. THE DIRECTOR’S SANCTIONS DECISIONS VIOLATED THE APA’S REQUIREMENT OF REASONED DECISIONMAKING

The Director found that PQA engaged in a campaign of misconduct. PQA pursued this IPR “for the primary purpose of extorting money,” flouted discovery orders, thwarted inquiry into its members and motives, made misrepresentations, and committed “abuses of process.” Appx102; *see* Appx73-103; Appx225-39. That misconduct, the Director found, “undermine[d]” the AIA’s objectives and “harm[ed] the IPR process.” Appx89, Appx103.

The Director nonetheless refused to terminate PQA’s abusive IPR. She dismissed PQA, then arbitrarily reinstated it. She purported not to address PQA’s motives, despite having already done so and despite their indisputable relevance. And the “strong admonishment” she ultimately issued was no sanction at all. The Director could not explain how admonishment would deter or punish PQA’s mis-

conduct, when PQA has no purpose beyond this IPR and its misconduct prevented anyone from knowing *who is behind PQA*. The Director’s rulings shifted without explanation and departed from the very authorities they professed to follow. Those unreasoned decisions were arbitrary, capricious, contrary to law, and an abuse of discretion.

Standard of Review. Agency decisions must be vacated if “‘arbitrary, capricious, an abuse of discretion,’” “‘otherwise not in accordance with law,’” or “‘unsupported by substantial evidence.’” *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 992 (Fed. Cir. 2017) (quoting 5 U.S.C. § 706(2)(A), (E)). An agency must “‘present a full and reasoned explanation’” and “‘articulate “logical and rational” reasons’” for its decision. *Id.* Sanctions decisions constitute an abuse of discretion if they are “‘clearly unreasonable, arbitrary, or fanciful,’” rest on legal or clear factual error, or are unsupported by “‘evidence on which the [agency] could rationally base its decision.’” *Apple Inc. v. Voip-Pal.com, Inc.*, 976 F.3d 1316, 1322-23 (Fed. Cir. 2020).

A. The Director’s Refusal To Terminate the IPR As a Sanction Defies Reasoned Decisionmaking

By statute, the Director must issue regulations “prescribing sanctions for abuse of discovery, abuse of process, or any other improper use of the proceeding.” 35 U.S.C. § 316(a)(6). PTO regulations thus authorize sanctions where a party makes a filing “for any improper purpose, such as to harass someone,” or engages

in other “misconduct,” including “[m]isrepresentation[s],” “[a]buse of discovery,” and “[a]buse of process.” 37 C.F.R. §§ 11.18(b)(2)(i), 42.11(a)-(c), 42.12(a). PQA’s misconduct ticked every box. In her December 2022 order, the Director found PQA engaged in outrageous abuse of process: It brazenly violated discovery orders, gave evasive and misleading responses, and pursued this IPR for the “sole,” “improper” purpose of “extorting” VLSI. Appx51-53, Appx74-87, Appx97-98, Appx103-04.³

Sanctions should be “suffic[ient] to deter repetition of the conduct or comparable conduct” and may include “[j]udgment in the trial,” “dismissal of the petition,” and “[t]erminating the proceedings.” 37 C.F.R. §§ 11.18(c)(5), 42.11(d)(4), 42.12(b)(8). It is hard to imagine a case where adverse judgment, dismissal, or termination would be more apt. Where a proceeding *would not have been pursued* absent the petitioner’s illicit motives—motives it tried to conceal through more misconduct—the natural, “proportional” response, Appx53, would be to *terminate* the improper proceeding. Consistent with sanctions’ purposes, that would “deter repetition,” 37 C.F.R. § 42.11(d)(4), and “restore” the parties “to the position they would have been in” absent the misconduct, *Funk v. Belneftekhim*, 861 F.3d 354, 371-72 (2d Cir. 2017); *see Apple Inc. v. Voip-Pal.com, Inc.*, IPR2016-01198, 2018

³ Given PQA’s obfuscations, VLSI cannot know whether PQA’s “sole” purpose was “extorting money,” Appx100, Appx103, or whether PQA had *other* illegitimate purposes, such as acting as a front for Intel. Either way, PQA had no proper purpose and stonewalled inquiries into its motives and backers. Appx92; Appx233.

WL 6729050, at *4 (PTAB Dec. 21, 2018) (“render whole the aggrieved party”). The Director’s decision to refuse termination—and instead impose a meaningless admonition—lacks the “full and reasoned explanation” the law requires. *In re Lee*, 277 F.3d 1338, 1342 (Fed. Cir. 2002).

1. The Director’s legal test—and unexplained deviation from it. The Director ruled termination is *not* an appropriate sanction where, in her assessment, “the unpatentability merits were compelling as of the time of institution.” Appx107-08. The Director borrowed that “compelling-merits standard” from a June 2022 Interim Guidance Memorandum. Appx107-08(& n.25) (invoking “compelling-merits determination here, per the Memorandum”); Appx56(& n.5). But that Memorandum and its “compelling-merits” standard were not about misconduct: They concerned when to grant IPR “where district court litigation is proceeding in parallel.” Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation 3-4 (USPTO June 21, 2022) (“Memorandum”).⁴

The Director never explained why the same standard should govern extreme misconduct and commonplace parallel proceedings. Nor could she. There is nothing inherently improper about pursuing IPR after being sued for infringement. But there is *everything* inherently improper about pursuing IPR for extortion, lying about it,

⁴ www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

and stonewalling discovery. And misconduct implicates concerns—such as deterrence—that parallel proceedings do not. The Director ignored those stark differences. Reasoned decisionmaking requires more: An agency “may not simply provide a conclusion”; it “must ‘articulate a satisfactory explanation’” of “*why* it decides any question the way it does.” *Aqua Products, Inc. v. Matal*, 872 F.3d 1290, 1325 (Fed. Cir. 2017) (en banc) (plurality) (emphasis added).

Worse, the Director inverted the test she professed to apply. The Memorandum explains that, *even if* a challenge is “compelling,” the PTAB *still* may refuse to proceed “where abuse has been demonstrated,” including “abuse of process.” Memorandum 4, 9. The Memorandum thus makes abuse of process a reason to deny an IPR *despite compelling merits*. The Director turned that upside-down: She deemed compelling merits a reason to proceed *despite abuse of process*. She never acknowledged—much less justified—that deviation.

That “depart[ure]” from the articulated standard, “without a reasoned explanation,” must “be vacated as arbitrary and capricious.” *Fred Beverages, Inc. v. Fred’s Capital Mgmt. Co.*, 605 F.3d 963, 967 (Fed. Cir. 2010). When an agency “professe[s] to decide the case before it according to” specific authority, “its action must be judged by the standards which the [agency] itself invoked.” *SEC v. Chenery*, 318 U.S. 80, 89 (1943). Having chosen “to conduct a compelling-merits determination here, *per the Memorandum*,” Appx108(n.25) (emphasis added), the Director

must be “judged by the standards” *in the Memorandum*. *Chenery*, 318 U.S. at 89. Far from applying the Memorandum’s standard, she turned it inside-out. That dooms her decision. *See id.* at 93-94; *INS v. Yueh-Shaio Yang*, 519 U.S. 26, 32 (1996).

The Director, moreover, required VLSI to “persuade [her] that the Petition *fails* to present compelling merits,” Appx109 (emphasis added); *see* Appx109-10. She never explained why the burden should not lie with petitioner PQA, which committed the misconduct. *Cf.* § 316(e) (petitioner bears burden of proof).

2. Departure from statute and regulations. The Director failed to grapple with the question the statute and regulations required her to answer: What sanction would adequately “deter” and “punish” the “abuse of process” and “improper use of [IPRs]” found here? Appx85; 37 C.F.R. § 42.11(d)(4); 35 U.S.C. § 316(a)(6). The Director never explained how parties would be deterred or punished if they may pursue IPRs for wholly improper purposes, stonewall efforts to uncover their motives, violate express orders, and engage in other misconduct—yet still have the proceeding go forward unimpeded.

Far from *deterring* misconduct, that *encourages* it. Appx1633-37, Appx1644-47. Allowing extortionate IPR petitions to proceed whenever the PTO subjectively determines the challenge has “compelling merits” pressures patent owners to give in to extortion. And it encourages aspiring extortionists—especially if, like PQA, they

never have to reveal their true identities. By ignoring those “perverse incentives,” *Mountain States Tel. & Tel. Co. v. FCC*, 939 F.2d 1035, 1046-47 (D.C. Cir. 1991), the Director “failed to consider an important aspect of the problem,” *Motor Vehicles Mfrs. Ass’n of U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).⁵

While the Director invoked a generalized “public interest in evaluating patent challenges with compelling merits,” Appx106, the only (non-sham) entity interested in challenging the ’373 patent is *Intel*. But Intel’s IPR was denied, and Intel abandoned its invalidity arguments in district court. The Director did not explain why Intel’s interest in getting a third bite at the apple should outweigh the statutorily prescribed interest in deterring IPR “abuse.” § 316(a)(6); *see* H.R. Rep. 112-98, pt. 1, at 48 (2011) (IPRs “are not to be used as tools for harassment”). Nor did she explain why any putative public interest in challenging this patent could not be served through legitimate processes (*e.g.*, lawful IPRs by parties with legitimate motives) rather than countenancing PQA’s misconduct.

3. Departure from agency practice. After dismissing PQA, the Director refused to terminate the IPR because Intel (which was concededly time-barred) had been joined. Appx104-08. The Director did not dispute that, in earlier cases, the

⁵ The Director’s assurance that current circumstances are “unusual” and “not likely to reoccur,” Appx108(n.26), is hard to swallow, given her near-simultaneous finding that OpenSky *also* used IPR threats to “extort” VLSI. *OpenSky*, IPR2021-01064, Paper 102 at 43 (PTAB Oct. 4, 2022). Even if misconduct is rare, that is no reason to encourage it.

agency “terminated joined time-barred parties” like Intel—terminating the IPRs entirely—upon “finding that an IPR was improperly instituted.” Appx105. She deemed those cases distinguishable because there “‘the *original* petitioner was *statutorily barred* from bringing the petition in the first instance,’ so the petition was void *ab initio*.” Appx105 (quoting Appx1998).

That distinction is wrong and inexplicable. The IPR in *I.M.L. SLU v. WAG Acquisition, LLC* was terminated because the original petitioner “fail[ed] to carry the burden to persuade [the PTAB] that it complied with the statutory requirement to name the real parties-in-interest.” IPR2016-01658, Paper 46 at 14 (PTAB Feb. 27, 2018) (cited Appx1998). Although grounds for termination, failure to name real parties-in-interest does *not* defeat “jurisdiction to proceed” *ab initio*. *Unified Patents, LLC v. B# On Demand, LLC*, IPR2020-00995, 2021 WL 6339062, at *21 (PTAB Nov. 10, 2021). Moreover, the Director found PQA guilty of the same failure: PQA did “not provide sufficient evidence to allow [the Director] to evaluate PQA’s” contention that “‘there are no other real parties in interest.’” Appx82-83; Appx236-37. The Director did not explain why that failure warranted termination in *I.M.L.* but not here. That lack of “reasoned explanation for departing from precedent or treating similar situations differently” was “arbitrary and capricious.” *Fred Beverages*, 605 F.3d at 967.

The Director cited cases where the agency “allowed a joined petitioner to step into an active role after the original petitioner was terminated.” Appx105-06. In those cases, however, the original petitioners *settled*—they were not dismissed for pervasive misconduct. Allowing legitimately pursued IPRs to continue after petitioners settle is miles from allowing an *illegitimately* pursued IPR to continue after the petitioner is dismissed for misconduct. The Director made no effort to bridge that chasm. Reasoned decisionmaking requires more than identifying some cases that reached a desired result. It requires explaining *why* those cases are more persuasive than others (like *I.M.L.*) that reached a different result. *See Aqua Products*, 872 F.3d at 1325 (en banc) (plurality); *PDK Labs. Inc. v. DEA*, 362 F.3d 786, 798-99 (D.C. Cir. 2004).

5. Arbitrary treatment of the [allegation] report. The [allegation] report asserted extensive [allegation] [allegation]. *See* p. 14, *supra*. If proven, those facts plainly would justify terminating the IPR as a sanction.

Yet the Director was remarkably incurious. She did not ask [allegation] to respond to the report’s disturbing allegations, which easily could have been tested through [allegation]. The Director declared she and the PTAB would not consider the report, and VLSI could “not rely on information from [the report]” to seek discovery. Appx141-42; Appx131. That made it [allegation]

allegation

Appx2597-98.

The Director invoked 37 C.F.R. §42.5(d), Appx141-42, which prohibits “[c]ommunication regarding a specific proceeding *with a Board member . . . unless* both parties have an opportunity to be involved in the communication.” (Emphasis added.) But government official sent the report to the Patents Ombuds Office, Appx136; Appx11077, not a Board member. And all parties had equal “opportunity to be involved in the communication” once received. 37 C.F.R. §42.5(d); *see* Appx11120-24. Section 42.5(d) barred nothing.

The Director declared she would “only consider admissible evidence in support of” any discovery motion, citing 37 C.F.R. §42.62(a), which applies the Federal Rules of Evidence to IPRs. Appx141. But “the Federal Rules of Evidence do not bar . . . consideration” of inadmissible evidence “when adjudicating discovery motions.” *Phoenix Process Equip. Co. v. Capital Equip. & Trad. Corp.*, No. 16-cv-24, 2021 WL 1062553, at *8 (W.D. Ky. Mar. 19, 2021) (collecting cases). And PTO precedent requires only “a threshold amount of evidence *or reasoning*”—not admissible evidence—to justify discovery. *Garmin Int’l, Inc. v. Cuozzo Speed Techs. LLC*, IPR2012-00001, 2013 WL 11311697, at *3 (PTAB Mar. 5, 2013) (precedential) (emphasis added). Invoking inapplicable regulations—and disregarding applicable

precedents—to block discovery into serious allegations is arbitrary, capricious, and contrary to law.

B. The Director’s Sanctions Decisions Cannot Be Rationalized

The Director’s later rationalizations confirm the lack of reasoned decision-making.

1. The August 2023 Order Exacerbated the Lack of Reasoned Decisionmaking

The Director’s December 2022 sanctions order refused to terminate the IPR, despite finding PQA pursued it for an “improper purpose” and committed “abuses of process.” Appx53, Appx98, Appx102. In her later, August 2023 order regarding sanctions, the Director purported to make no finding regarding “PQA’s motive”—without questioning her prior findings. Appx236(n.25); *see* Appx242(n.29); pp. 15-16, *supra*. That exacerbated the departure from APA requirements.

The August 2023 order nowhere casts doubt on the December 2022 findings. It never says PQA’s misconduct was not an abuse of process, or that it was inappropriate to infer that PQA pursued the IPR for an improper purpose. To the contrary, the August 2023 order maintains PQA’s “discovery misconduct would be sufficient to give rise to adverse inferences.” Appx241. It notes the earlier decision. Appx236(n.25). But it then purports not to decide whether PQA had an improper purpose, and omits the phrase “abuse of process.” *See* Appx236(n.25), Appx242(n.29); Appx264-65. “When an agency decides to change course, however,

it must adequately explain the reason for a reversal of policy.” *Nippon Steel Corp. v. ITC*, 494 F.3d 1371, 1377 n.5 (Fed. Cir. 2007). The Director provided no reasoned explanation for disregarding her findings about PQA’s improper motives and abuse of process. She simply ignored them.

The statute and regulations are clear, moreover, that “improper use of [an IPR] proceeding” and “abuse of process” are *central* to “sanctions” inquiries. 35 U.S.C. § 316(a)(6); *see* 37 C.F.R. § 11.18(b)(2)(i), (c) (authorizing “sanctions” when filings made for “improper purpose”); §§ 42.11(c)-(d), 42.12(a). The August 2023 order disregards both. A sanctions determination that *does not address* whether there was improper purpose or abuse of process “entirely fail[s] to consider an important aspect of the problem” and cannot be sustained. *State Farm*, 463 U.S. at 43. An “agency’s refusal to consider evidence bearing on the issue before it is, by definition, arbitrary and capricious.” *Aqua Products*, 872 F.3d at 1325 (en banc) (plurality).

The August 2023 order confirms the Director treated putative “compelling merits” as a trump card foreclosing termination—no matter how egregious the petitioner’s abuses or improper its motives. Appx236(n.25). That blinkered approach improperly “backhand[ed]” “important consideration[s]” the Director had to account for. *Kentucky Mun. Energy Agency v. FERC*, 45 F.4th 162, 177 (D.C. Cir. 2022); *see* pp. 28-29, *supra*. And the December 2022 order refusing to terminate must stand or fall on its own: An “administrative order cannot be upheld unless *the*

grounds upon which the agency acted . . . were those upon which its action can be sustained.” Chenery, 318 U.S. at 95 (emphasis added). But the August 2023 order further underscores that decision’s inadequacy.

2. *Efforts To Evade Review Are Unavailing*

Contrary to Intel’s protestations, the refusal to terminate is reviewable. Under 35 U.S.C. § 314(d), a determination “whether *to institute* an inter partes review under this section” is not appealable. (Emphasis added). But VLSI is not challenging *institution* of PQA’s IPR; it is challenging the denial of meaningful *sanctions* for PQA’s misconduct (which intensified post-institution). The two are distinct: Institution is governed by § 314, while sanctions are governed by § 316(a)(6) and PTO regulations. This Court can and does review the denial of sanctions requested under § 316(a)(6) and implementing regulations. *See Voip-Pal.com*, 976 F.3d at 1323-24.

Insofar as the Director viewed the sanctions issue as merely “whether to de-institute,” Appx218, she erred. Available sanctions are broader, and include “[t]erminating the proceedings,” “[j]udgment in the trial,” and “dismissal of the petition”—after and independent of the institution decision itself. 37 C.F.R. §§ 11.18(c)(5), 42.12(b)(8). VLSI sought “terminating sanctions.” Appx1644-45 (citing 37 C.F.R. §§ 11.18(c)(5), 42.12(b)(8)). The Director had authority to issue those sanctions, *see* 37 C.F.R. § 11.18(c)(5) (as “Director”); §§ 42.2(1), 42.12 (as

“Board Member”), and this Court can review her refusal.⁶ If the Director failed to appreciate that her authority encompassed termination, “doubts about whether the agency appreciated the scope of its discretion” require vacatur for the Director “to consider the issue anew.” *Dep’t of Homeland Sec. v. Regents of the Univ. of Cal.*, 591 U.S. 1, 26, 35-36 (2020).

3. *The Director Abused Her Discretion by Reinstating PQA*

Finding that “PQA should not benefit from its abusive use of the IPR process,” the Director initially “dismiss[ed] PQA,” while “retaining jurisdiction over . . . sanctions.” Appx107. Weeks later, however, PQA asserted that the dismissal put it beyond the Director’s jurisdiction, precluding further sanctions. Appx127. That argument was frivolous. A tribunal “retains jurisdiction over whether to grant sanctions” even “after the merits of a case are dismissed.” *Walker v. Health Int’l Corp.*, 845 F.3d 1148, 1155 (Fed. Cir. 2017) (district-court context). Nothing in the IPR statute or regulations says otherwise. But the Director folded anyway. Without finding PQA’s objection meritorious—or even colorable—the Director *sua sponte* reinstated PQA, solely to moot its objection. Appx127.

That was an abuse of discretion. The Director never found PQA’s dismissal unwarranted, or reconciled reinstating PQA with the need to “punish” and “deter.”

⁶ In addition to asking the Director to “terminate this IPR,” VLSI *also* requested she “vacate the decision instituting it.” Appx1644. Section 314(d) at most bars review regarding the latter request.

Appx85. She instead abandoned the dismissal—despite having found it necessary to ensure PQA did “not benefit from its abusive use of the IPR process,” Appx107—for the *administrative convenience* of mooting a frivolous argument. By failing to reconcile that decision with any factor relevant to sanctions, the Director abused her discretion. *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971).

C. The Director Abused Her Discretion in Denying Any Meaningful Sanction

Ultimately, the Director’s “sanction” was only a “strong admonishment” to PQA and a “warning not to repeat this conduct in the future.” Appx255. Even in ordinary cases, that would be an exceedingly light sanction for misconduct that “undermined” the PTO’s ability “to administer the AIA system.” Appx264. And this is no ordinary case.

PQA is a shell with no business beyond this IPR. PQA’s misconduct, the Director found, included “refus[al] to disclose its members” or “provide sufficient evidence to allow [the Director] to evaluate” whether there are ““other real parties in interest.”” Appx228-29, Appx236-37; Appx267. PQA’s members and backers remain a mystery. The Director did not explain how her admonition and warning could “deter future conduct by PQA,” Appx264, when *nobody knows who PQA is* and PQA’s only business *is this IPR*. See Appx2868-69, Appx2878. The Director’s failure to grapple with those problems—inherent in the misconduct she found—renders her decision arbitrary and unreasoned. *State Farm*, 463 U.S. at 43.

Denying VLSI fees, the Director declared VLSI had not shown PQA's *discovery violations* and *misrepresentation* "resulted in harm to VLSI," because the IPR was allowed to proceed. Appx263. But VLSI incurred substantial costs responding to PQA's misconduct. Appx2879-81. Attorney's fees appropriately "compensate a party for the extra legal effort [needed] to counteract [another party's] misconduct." *Monolithic Power Sys., Inc. v. O2 Micro Int'l Ltd.*, 726 F.3d 1359, 1369-70 (Fed. Cir. 2013). The Director awarded VLSI fees incurred responding to *another* petitioner's misconduct in another IPR the Director refused to terminate. *See OpenSky*, IPR2021-01064, Paper 127, at 12-13 (PTAB Feb. 3, 2023). The Director never explained why the cost of responding to PQA's intransigence was not cognizable harm here too.

The Director disregarded "PQA's motives" because her August 2023 "order was not based on such a finding." Appx264-65 (citing Appx236(n.25)). But her December 2022 order *did* find improper motives. *See* pp. 12-13, *supra*. And *refusing to consider* PQA's motives is indefensible: An agency cannot deny relief by refusing to make—or acknowledge—"findings" on "material facts." *Lee*, 277 F.3d at 1344-45. The Director also announced she would "not reach VLSI's additional arguments for compensatory expenses." Appx263(n.8); *see* Appx2868-82. But agencies cannot refuse, without explanation, to consider a party's argu-

ments. *See Shinn Fu Co. of Am. v. Tire Hanger Corp.*, 701 F. App'x 942, 946 (Fed. Cir. 2017); *Frizelle v. Slater*, 111 F.3d 172, 177 (D.C. Cir. 1997).

* * *

The Director found PQA sought to extort VLSI; stonewalled the Director's inquiry into its members and motives; and committed "abuses of process" that "harm the IPR process, patent owners, the Office and the public." Appx103-04. Yet she let PQA off with barely a talking-to. That is inexplicable. PQA has no legitimate business or reputation to worry about, and its members will feel no sting because PQA concealed their identities *through the very misconduct the Director was supposed to be sanctioning*.

Only termination of PQA's abusive IPR will provide adequate deterrence and punishment. At the very least, vacatur is warranted for proper consideration of sanctions, to and including termination.

II. INTEL WAS BARRED FROM BEING A PARTY

The PTO erred in allowing Intel to be a party. The IPR statute does not allow entities that file untimely petitions to be joined to another petitioner's IPR. And claim preclusion bars adjudicated infringers like Intel from using IPRs to collaterally attack district-court infringement judgments.

Intel's unlawful participation was immensely prejudicial. Intel did not merely marshal vast resources, collaborate with PQA, Appx1559, and throw independent

roadblocks in VLSI’s way.⁷ When the Director dismissed PQA for misconduct, she refused to terminate the IPR *because Intel was a party*—allowing the IPR to continue with Intel as “sole Petitioner.” Appx105-07; *see* p. 13, *supra*. Absent Intel’s unlawful joinder, there is every possibility this IPR would have ended. *E.g., IBM Corp. v. Intellectual Ventures II LLC*, IPR2014-01465, Paper 32 at 9-10 (PTAB Nov. 6, 2015); *see* 37 C.F.R. § 42.72; 35 U.S.C. § 317(a).⁸

Standard of Review. Statutory interpretation is reviewed *de novo*, *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1330 (Fed. Cir. 2020), as is claim preclusion, *Nasalok Coating Corp. v. Nylok Corp.*, 522 F.3d 1320, 1323 (Fed. Cir. 2008).

A. Intel’s Joinder Was Barred Under § 315 Because Intel’s Untimely Petition Was Not “Properly Filed”

1. The statute is clear: *Only* a party that “properly files” an IPR “petition” may be “join[ed] as a party” to another challenger’s IPR. 35 U.S.C. § 315(c). Here, Intel’s petition was *not* “properly file[d].” Intel filed the petition underlying its joinder request *years* after § 315(b)’s deadline—“1 year after” Intel was served with the infringement complaint—had passed. *See VLSI Tech. LLC v. Intel Corp.*, No.

⁷ *E.g.*, Appx1441-42 (opposing VLSI stay request when PQA did not); Appx1548-54, Appx1569-70 (levying (false) allegations against *VLSI* when Director sought briefing on *PQA*’s misconduct); Appx2034-37 (*VLSI*’s response).

⁸ It is irrelevant that the Director later reinstated PQA; that decision had nothing to do with the appropriateness of dismissal. *See* pp. 36-37, *supra*.

6:21-cv-57, Dkt. 6 (W.D. Tex. Apr. 15, 2019) (proof of service); Appx12080; Appx12093(n.2). Because the petition was untimely, it was not “properly file[d],” and Intel could not be joined. § 315(c).

The phrase “properly file[d]” excludes untimely petitions. In “‘common usage’ and ‘commo[n] underst[anding],’” “the phrase ‘properly filed’” encompasses “time limits.” *Pace v. DiGuglielmo*, 544 U.S. 408, 413, 417 (2005). “[T]ime limits . . . are ‘filing’ conditions.” *Id.* A “‘properly filed’” document must comply with applicable “time limits.” *Artuz v. Bennett*, 531 U.S. 4, 8 (2000). An “untimely petition would *not* be deemed ‘properly filed.’” *Pace*, 544 U.S. at 413 (emphasis added); see *Allen v. Siebert*, 552 U.S. 3, 6-7 (2007) (per curiam) (“untimely” petition “not ‘properly filed’”).

That “‘common usage’” of “‘properly filed,’” *Pace*, 544 U.S. at 413, controls. It is the phrase’s “‘ordinary meaning.’” *FCC v. AT&T Inc.*, 562 U.S. 397, 403 (2011). And courts presume Congress adopts a term’s “well-settled judicial interpretation.” *Helsinn Healthcare S.A. v. Teva Pharmaceuticals USA, Inc.*, 586 U.S. 123, 132 (2019). Congress invoked that interpretation here. Citing the Supreme Court’s decisions in *Pace*, *Artuz*, and *Allen*, *supra*, Senator Kyl—a leading AIA sponsor—explained that the “properly filed” “petition” requirement means “time deadlines for filing petitions must be complied with in all cases.” 154 Cong. Rec. S9988 (daily ed. Sept. 27, 2008) (emphasis added). That principle, he ex-

plained, applies to “the meaning of ‘*properly filed*’ when used in *the joinder provisions in [§] 315(c).*” 157 Cong. Rec. S1375 (daily ed. Mar. 8, 2011) (emphasis added); see Matal, *A Guide to the Legislative History of the America Invents Act: Part II of II*, 21 Fed. Cir. B.J. 539, 613-14 (2012). Intel’s untimely petition thus was not “properly file[d],” § 315, foreclosing joinder.

2. Reaching the opposite result, the PTO invoked § 315(b)’s statement that the one-year time limit does not apply to “requests for joinder.” But that statement means only what it says—that *joinder requests* are not subject to the one-year limit and can be filed later. It does not exempt the requester’s *petition* from the one-year limit or erase the precondition to joinder that petitions be “properly file[d].”

The PTO’s view that the exemption for joinder requests also “exempt[s] *the petition* that accompanies a joinder request from [§ 315(b)]’s time limitation,” *Proppant Express Investments, LLC v. Oren Techs.*, IPR2018-00914, Paper 38 at 17 (PTAB Mar. 13, 2019) (emphasis added)—reaffirmed by the Director, Appx208—defies clear statutory text.⁹ The AIA distinguishes between a “petition” and a “request for joinder.” § 315(b)-(c). Section 315(b) subjects an infringement defen-

⁹ As the Director has explained, no court has resolved whether time-barred parties may be joined to IPRs. Brief for Federal Respondent 14-15, in No. 23-315 (U.S.) (explaining that *Facebook*, 973 F.3d 1321; *Network-1 Techs., Inc. v. Hewlett-Packard Co.*, 981 F.3d 1015 (Fed. Cir. 2020); and *Thryv, Inc. v. Click-To-Call Techs., LP*, 590 U.S. 45 (2020), addressed the issue only in “dicta”). And because joinder “is a separate and subsequent decision to” institution, this Court has held joinder is reviewable despite the non-reviewability of institution. *Facebook*, 973 F.3d at 1332.

dant’s “petition” to a one-year time limit. It then exempts a “request for joinder” under § 315(c)—and *only* that request—from the one-year limit. Indeed, the AIA elsewhere exempts certain “petition[s]” from *other* timing requirements, § 311(c), but nowhere exempts “petitions” accompanied by joinder requests from § 315(b)’s one-year limit. “[W]here Congress includes particular language in one section of a statute but omits it in another,” it is “generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.” *Russello v. United States*, 464 U.S. 16, 23 (1983).

Section 315(b)’s exception serves a modest but practical role: It lets infringement defendants make a “request for joinder” *after* the one-year time limit, provided the “petition” underlying that request is “properly file[d]” *within* the one-year window. That makes sense. A party can be “join[ed]” to another person’s IPR only if the PTO “institutes” that other person’s IPR. § 315(c). Because institution of the other person’s IPR may not occur until six months after that person seeks review, §§ 313, 314(b); 37 C.F.R. § 42.107(b), it may not be feasible for defendants to request joinder until after the one-year period’s expiration. Section 315(b) clarifies that such delays do not bar joinder for otherwise timely petitions. But it does not remove defendants’ obligation to properly—timely—file their petitions.

B. Claim Preclusion Barred Intel's Participation

Common-law claim preclusion bars “a defendant to an infringement suit that results in a judgment of infringement” from using later proceedings “to collaterally attack the judgment of the first action.” *Nasalok*, 522 F.3d at 1328. Common-law preclusion applies to agency proceedings, including IPRs. *See id.* at 1328-30 (court judgment claim-preclusive in PTO proceedings); *MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1376-77 (Fed. Cir. 2018) (issue preclusion between IPRs). Thus, in *Nasalok*, a defendant was subject to a district-court judgment for trademark infringement. 522 F.3d at 1328. This Court held that common-law claim preclusion barred the defendant from challenging the trademark’s validity before the PTO, because the challenge, if successful, would improperly “nullify the initial judgment” or “impair rights established in the initial action.” *Id.* at 1340.

1. Claim preclusion likewise bars Intel from using this IPR to collaterally attack the infringement judgment. The district court entered judgment against Intel on infringement and validity of the '373 patent. Appx6365; *see p. 7, supra*. In this IPR, Intel challenges every claim of the '373 patent underlying that judgment, Appx12006-07; Appx12198, Appx12214, with the admitted aim of escaping liability for infringement, Appx1988-89; ECF #26 at 2; ECF #34 at 4. Intel thus seeks to use this IPR to “nullify the initial judgment” and “impair [VLSI’s] rights established in

the initial action.” *Nasalok*, 522 F.3d at 1328. Claim preclusion bars that collateral attack on the “judgment of infringement.” *Id.*¹⁰

The PTAB nowhere disputed that the traditional requirements for claim preclusion are satisfied here. Instead, it urged that Congress abrogated common-law claim preclusion in IPRs. Appx161. But claim preclusion is a “fundamental precept of common-law adjudication.” *Montana v. United States*, 440 U.S. 147, 153 (1979). It applies “except ‘when a statutory purpose to the contrary is *evident*.’” *Astoria Fed. Sav. & Loan Ass’n v. Solimino*, 501 U.S. 104, 108 (1991) (emphasis added). To displace the common law, a statute must “‘speak directly’ to the question” at issue. *United States v. Texas*, 507 U.S. 529, 534 (1993).

The AIA does not. It says nothing about the claim-preclusive effect of *district-court* judgments in IPRs. It *supplements* common-law preclusion by creating an “enhanced” preclusion running *from earlier IPRs* to later proceedings. 157 Cong. Rec. S5402, S5429 (daily ed. Sept. 8, 2011) (Senator Kyl); *see Click-To-Call Techs. LP v. Ingenio, Inc.*, 45 F.4th 1363, 1368 (Fed. Cir. 2022) (explaining that 35 U.S.C. § 315(e) omits “‘actually litigated’ prong of issue preclusion”). But the statute never mentions, much less rejects, common-law preclusion *by earlier*

¹⁰ That this Court vacated the damages award is irrelevant; it affirmed the *infringement* judgment. *See* pp. 7-8, *supra*; 18A Wright & Miller, *Federal Practice and Procedure* § 4432 & n.26 (3d ed.) (partially affirmed judgment is preclusive to extent affirmed). That judgment entitles VLSI to “a reasonable royalty,” 35 U.S.C. § 284—a right Intel seeks to impair by invalidating the claims here.

civil actions. Such “silen[ce]” “‘falls far short’” of evident intent to abrogate a common-law rule. *Texas*, 507 U.S. at 535. A statute that “says nothing about the preclusive effect of [district]-court judgments” cannot be read to “contravene the common-law rules of preclusion.” *Allen v. McCurry*, 449 U.S. 90, 97-98 (1980).

2. The PTAB’s view that Congress intended to jettison common-law preclusion rests primarily on § 315(e). Appx158. Section 315(e) provides that, once *an IPR* results in a final written decision, the petitioner may not challenge the patent claims in civil actions or IPRs on grounds it “raised or reasonably could have raised during” the IPR. § 315(e)(1)-(2). The PTAB reasoned that, “[i]f common-law preclusion applied after IPR proceedings, there would be no need for the § 315(e) estoppel provisions,” because “claim preclusion” purportedly “would prohibit a petitioner from raising arguments in a district court . . . that it could have made during the IPR.” Appx158. In the PTAB’s view, Congress thus intended to adopt “common-law” “claim preclusion” only “in one direction—from an IPR to other proceedings—but not in the other direction—from district-court litigation to [PTO] proceedings.” Appx158, Appx160.

That reasoning, however, begins with a mistaken premise: Common-law claim preclusion would *not* bar unsuccessful IPR challengers from asserting invalidity in later district-court infringement actions. Claim preclusion generally requires that both actions involve the “same claim.” *Nasalok*, 522 F.3d at 1324. But

as *Nasalok* explains, an “infringement” action and an “invalidity” challenge are *not* the “same claim” for claim-preclusion purposes, because they do not require proof of the same “‘essential facts.’” *Id.* at 1324, 1324-27. An unsuccessful invalidity challenge thus “does not [claim-]preclude the assertion of an invalidity defense” in later infringement actions involving products not accused in the first action, *id.* at 1326-27—which will always be the case where the “first action” was an IPR (as IPRs involve no accused products).

Even if two actions do not involve the “same claim,” common-law claim preclusion may bar a later action that “is essentially a collateral attack on the first judgment.” *Nasalok*, 522 F.3d at 1324. That rule, however, applies only where the precluded party was the “*defendant* in the first action.” *Id.* (emphasis added) (“different rules” govern preclusion “against a defendant in the first action”). That rule thus bars Intel, the defendant in the first action, from collaterally attacking the judgment against it here. *See* pp. 44-45, *supra*. But that rule does not apply in the situation § 315(e) addresses, where an accused infringer was the IPR *petitioner*—*i.e.*, plaintiff rather than defendant—in the first action. Section 315(e) thus shows only that Congress *supplemented* traditional preclusion rules—not that it “removed” them. *Texas*, 507 U.S. at 538.

3. Even if § 315(e) merely codified one application of common-law claim preclusion (it does not), that would not show “evident” intent to abrogate *other*

applications of common-law claim preclusion. This Court’s decision in *SynQor, Inc. v. Vicor Corp.*, 988 F.3d 1341 (Fed. Cir. 2021), makes that clear. *SynQor* involved the inter partes reexamination statute, which included “statutory estoppel provisions” that were sometimes “more muscular than common law [preclusion]” and sometimes a “codification of common law claim preclusion principles.” *Id.* at 1347-48. This Court held those *statutory* preclusion provisions showed “no evident intent to foreclose *common law* [preclusion],” and thus did not abrogate common-law preclusion in situations the statute “failed” to address. *Id.* (emphasis added). The same is true here. Whether § 315(e) is a “codification of common law claim preclusion” (as the PTAB contended) or a “more muscular” expansion (as VLSI maintains), Congress’s inclusion of that statutory estoppel “shows no evident intent to foreclose common law [preclusion]” where it otherwise applies. *Id.* at 1348.

The PTAB thought *SynQor* held only that “*statutory* issue preclusion, while expressly directed at district-court proceedings, applied also to future reexamination proceedings.” Appx160 (emphasis added). Not so. *SynQor* held the *statutory* preclusion “failed” to address future reexaminations, and that “*common law*” preclusion therefore governed. 988 F.3d at 1348 (emphasis added). Likewise here, common-law preclusion governs situations that § 315(e) fails to address. *SynQor* rested *not* on the “particular preclusion” provided by statute, Appx160, but on background

preclusion principles. And it applied common-law preclusion in a “direction,” Appx160—from one reexamination to another—the statute nowhere addressed.

Nor is it relevant that *SynQor* involved issue rather than claim preclusion. Appx160. Both “collateral estoppel and res judicata” (issue and claim preclusion) are “fundamental precept[s] of common-law adjudication,” *Montana*, 440 U.S. at 147; see *Minerva Surgical, Inc. v. Hologic, Inc.*, 594 U.S. 559, 572 (2021), that apply to agency proceedings absent evident contrary intent, see *Nasalok*, 522 F.3d at 1330.

4. The PTAB emphasized the “lower burden of proof for IPRs” compared to district-court actions. Appx158-60. Unlike issue preclusion, however, “[c]laim preclusion is not affected by shifts or changes in the burden of persuasion.” 18 Wright & Miller, *Federal Practice and Procedure* § 4422 n.1. The PTAB therefore professed not to “rely on the different evidentiary burdens as itself a reason not to apply claim preclusion,” but only “as evidence regarding Congress’ intent.” Appx159. That makes no sense. If different evidentiary burdens are irrelevant to claim preclusion (and they are), they say nothing about Congress’s intent regarding claim preclusion.

That “the AIA does not require that district courts stay litigation pending [PTO] review,” Appx158, shows Congress intended district courts to *retain* their traditional adjudicatory role in patent disputes. That includes the traditional claim-preclusive effect of their judgments. Likewise, while the AIA “accepts the reality

that parallel proceedings . . . may address overlapping issues,” Appx158, that accords with the common-law principle that, when “cases proceed in parallel, the first to reach judgment controls the other, through claim preclusion.” *Blair v. Equifax Check Servs., Inc.*, 181 F.3d 832, 838 (7th Cir. 1999); see *Maksimuk v. Connor Sport Court Int’l, LLC*, 771 F. App’x 1001, 1002, 1004-05 (Fed. Cir. 2019). And provisions restricting IPRs based on *filing* or *service* of district-court actions, Appx160-61 (citing 35 U.S.C. § 315(a)(1), (b)), are irrelevant to claim preclusion, which applies once a district-court action reaches *judgment*. *Nasalok*, 522 F.3d at 1328.

The PTAB’s reliance on “‘two-way’ claim preclusion” in the former inter partes reexamination statute, Appx159 (citing pre-AIA § 317(b)), is misplaced. “[D]iscerning congressional intent” properly focuses on “the existing statutory text,” “not the predecessor statutes.” *Lamie v. U.S. Trustee*, 540 U.S. 526, 534 (2004). Nothing in the current statute evinces the requisite “evident” intent to foreclose common-law claim preclusion. Besides, shortly before Congress overhauled § 317, this Court’s *Nasalok* decision clarified that *common-law* claim preclusion bars infringement defendants from waging collateral attacks in the PTO. 522 F.3d at 1328-29. Congress’s decision not to include “express claim preclusion against an unsuccessful party in litigation,” Appx159, likely reflects a determination that, given *Nasalok*, a *statutory* bar was unnecessary.

Abrogating common-law claim preclusion would undermine Congress’s goal of preventing infringers from “improperly mounting multiple challenges to a patent” through “repeated litigation and administrative attacks on the validity of a patent.” H.R. Rep. No. 112-98, pt. 1, at 48. Intel had full opportunity to defend against VLSI’s infringement claim, including by contesting validity. But it strategically withdrew its invalidity defense—only to collaterally attack the resulting judgment through this IPR. The AIA was “‘designed to establish a more efficient and streamlined patent system,’” *id.* at 40, not encourage inefficiency and gamesmanship.

III. THE PTAB ERRED IN FINDING VLSI’S CLAIMS UNPATENTABLE

A. Abadeer Is Not a Prior-Art Printed Publication That Could Be Asserted in This IPR Under §311(b)

Patent claims may be challenged “in an inter partes review” “*only* on the basis of prior art consisting of *patents or printed publications*.” 35 U.S.C. §311(b) (emphasis added). Here, all of the PTAB’s unpatentability determinations rely on Abadeer. Appx173-75, Appx185, Appx193-96; *see* Appx1007. The PTAB relied on Abadeer as disclosing determining and storing memory’s minimum operating voltage, as limitations 1[c], 1[d.1], and 1[d.2] require. Appx173-74. But Abadeer—an abandoned patent application not available before the ’373 patent’s critical date—is neither “a prior art patent” nor “a prior art printed publication.” *Qualcomm Inc.*

v. Apple Inc., 24 F.4th 1367, 1375 (Fed. Cir. 2022). The unpatentability determinations must be reversed.¹¹

Standard of Review. Statutory interpretation is reviewed *de novo*. *Facebook*, 973 F.3d at 1330.

1. *Abadeer Is Neither a Prior-Art “Patent” Nor a Prior-Art “Printed Publication”*

Section 311(b) is clear: A reference cannot form a basis for an IPR unless it is “a prior art patent or prior art printed publication.” *Qualcomm*, 24 F.4th at 1375. *Abadeer* is an abandoned application that never issued as a “patent.” Appx191-93; Appx4132-44. A “mere application for a patent” is not a “patent.” *Brown v. Guild*, 90 U.S. 181, 210-11 (1874).

Nor is *Abadeer* a prior-art “printed publication.” A reference is not a “prior-art printed publication” unless it was “‘sufficiently accessible to the public interested in the art’ before the [patent’s] critical date.” *Voter Verified, Inc. v. Premier Elections Sols., Inc.*, 698 F.3d 1374, 1380 (Fed. Cir. 2012). Time and again this Court has reaffirmed that established interpretation:

- “The statutory phrase “printed publication” has been interpreted to mean that before the critical date the reference must have been sufficiently accessible to the public interested in the art; dissemi-

¹¹ This issue is also presented in *Lynk Labs, Inc. v. Samsung Electronics Co.*, No. 23-2346, where VLSI filed an amicus brief, No. 23-2346, Dkt. 17. The Court declined to stay these appeals pending the decision in *Lynk*. ECF #59. Mindful of this Court’s rule against incorporating arguments by reference, VLSI briefs the issue here while noting it is more extensively briefed, and likely will be decided first, in *Lynk*.

nation and public accessibility are the keys to the legal determination whether a prior art reference was “published.”” *In re Klopfenstein*, 380 F.3d 1345, 1348 (Fed. Cir. 2004) (quoting *In re Cronyn*, 890 F.2d 1158, 1160 (Fed. Cir. 1989)).

- “For a reference to qualify as a printed publication, ‘before the critical date the reference must have been sufficiently accessible to the public interested in the art.’” *Valve Corp. v. Ironburg Inventions Ltd.*, 8 F.4th 1364, 1373 (Fed. Cir. 2021) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1568 (Fed. Cir. 1988)).

“[P]ublic accessibility” before the critical date is the “‘touchstone’” in determining whether a document is a prior-art “printed publication.” *Samsung Elecs. Co. v. Info-bridge Pte. Ltd.*, 929 F.3d 1363, 1369 (Fed. Cir. 2019).

Under that definition, Abadeer undisputedly is *not* a prior-art “printed publication.” The ’373 patent’s critical date was no later than August 30, 2006. Appx270. Abadeer was not published until November 16, 2006. Appx4132. Before publication, Abadeer was not publicly accessible. *See* 35 U.S.C. § 122(a)-(b) (2006) (pre-publication, “applications for patents shall be kept in confidence by the [PTO]”). Because Abadeer was not publicly accessible before the critical date, it is not a prior-art “printed publication” as § 311(b) requires.

2. *The PTAB’s Decision Defies § 311(b)*

Dismissing precedent holding that public accessibility before the critical date is the touchstone for prior-art printed publications, the PTAB invoked pre-AIA 35 U.S.C. § 102(e)(1) (2006), an inapplicable provision that nowhere mentions “printed

publications.” Under pre-AIA § 102(e)(1), the PTAB ruled, an “application for patent” like Abadeer is available prior art in IPRs as of its *filing* date rather than its *publication* date. Appx191-93. That defies the statute.

Pre-AIA § 102 defines different categories of prior art that may be available in various proceedings, including:

- “patent[s],”
- “printed publication[s],”
- inventions “known or used by others in this country,”
- inventions “in public use or on sale in this country,” and
- “application[s] for patent.”

Pre-AIA § 102(a)-(b), (e)(1). Current § 102 is similar. § 102(a)(1)-(2), (d).

In some contexts—*e.g.*, infringement litigation—prior art in any category may be invoked. § 282(b)(2). But “in an inter partes review,” “only” *two* categories may be the basis for challenging a patent: prior-art “patents” and prior-art “printed publications.” § 311(b). Congress could have included “applications for patents” as grounds for IPRs in § 311(b), but did not. “‘When Congress includes a specific term in one section of a statute but omits it in another section of the same Act, it should not be implied where it is excluded.’” *Richard v. United States*, 677 F.3d 1141, 1147 n.11 (Fed. Cir. 2012). Because § 311(b) does not include patent applications as a permissible category of prior art in IPRs, Abadeer can be considered in this IPR

only if it meets the requirements for prior-art “printed publications”—including public accessibility before the critical date—which Abadeer does not.

Statutory history reinforces the point. In the American Inventors Protection Act of 1999 (AIPA), Congress *added* “application[s] for patent” as a separate category of prior art in § 102(e)(1), but *excluded* that category from the prior art (“patents” and “printed publications”) that could support the inter partes reexaminations the AIPA created. Pub. L. No. 106-113, tit. IV, § 4505, 113 Stat. 1501, 1501A-552, 1501A-565 (amending § 102); *id.* § 4604, sec. 311(a), 113 Stat. at 1501A-567 (limiting prior art in inter partes reexamination to “patents” and “printed publications”). Congress carried that exclusion forward when it created IPR, limiting it to prior-art “patents” and “printed publications.” 35 U.S.C. § 311(b). Had Congress intended later-published applications to serve as bases for IPR (or inter partes reexamination), it would have said so.

The PTAB would give “printed publications” in § 311(b) a different meaning than this Court gives the term in § 102. That contravenes the presumption that, “when Congress uses a term in multiple places within a single statute, the term bears a consistent meaning throughout.” *Azar v. Allina Health Servs.*, 587 U.S. 566, 576 (2019). Here, § 311(b) cross-references § 102, reinforcing that Congress intended to adopt § 102’s well-established definition of “printed publications.” And the “settled pre-AIA precedent on the meaning of” printed publications, discussed above,

cements “that when Congress reenacted the same language in the AIA, it adopted the earlier judicial construction of that phrase.” *Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc.*, 586 U.S. 123, 131 (2019).

3. *The PTAB’s Remaining Rationales Are Unpersuasive*

Disregarding this Court’s precedents defining “printed publications,” the PTAB invoked *Purdue Pharma L.P. v. Iancu*, 767 F. App’x 918 (Fed. Cir. 2019). Appx192. As the PTAB conceded, Appx192, *Purdue* “did not consider the specific argument raised here”—whether an application published only after the critical date is a prior-art “printed publication.” The issue was not raised.¹² A non-precedential decision where the issue was neither raised nor decided cannot overcome a mountain of precedent.

Nor does *Becton, Dickinson & Co. v. Baxter Corp. Englewood*, 998 F.3d 1337 (Fed. Cir. 2021), support the PTAB’s decision. Appx193. There, a *patent* asserted as prior art in an IPR was given the benefit of its filing date under pre-AIA § 102(e)(2). 998 F.3d at 1345 & n.7. “[P]atents” are one of the categories of prior art listed in § 311(b). *Becton* reflects that, when “patents” are asserted in IPRs, the priority rules governing “patents” govern. But when “printed publications” are asserted in IPRs, the priority rules governing “printed publications” govern. Under

¹² The patentee contested the application’s prior-art status “entirely” on the theory that its patent was “entitled to [an earlier] priority” date. 767 F. App’x at 923, 925.

those rules, references qualify as prior-art “printed publications” only if they were publicly accessible before the critical date. Abadeer concededly was not.

B. The PTAB’s Obviousness Determinations Lack Evidentiary Support and Defy Reasoned Decisionmaking

The PTAB’s decision cannot stand regardless. Time and again, it blinks away the lack of evidence supporting its conclusions, fails to provide a reasoned basis for its decisions, and simply asserts that the PTAB “agrees” with PQA—an assertion this Court has condemned as legally insufficient. *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1047 (Fed. Cir. 2017).

Standard of Review. This Court reviews the PTAB’s “obviousness determination[s] de novo” and any “underlying factual determinations for substantial evidence.” *TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1357 (Fed. Cir. 2019). Under the APA, the PTAB must provide “‘a reasoned basis’” for its decision. *In re Nuvasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016); p. 24, *supra*.

1. *Harris Does Not Teach or Suggest Providing the First or Second Regulated Voltage When the Claims Require*

The ’373 patent specifies two scenarios for supplying voltage to memory. “[W]hen the first regulated voltage is *at least* the value of the minimum operating voltage,” limitation 1[h] requires that the “first regulated voltage” be supplied to memory. Appx280(13:20-22). But “when the first regulated voltage is *less than* the value of the minimum operating voltage,” limitation 1[i] requires that the “second

regulated voltage” be supplied to memory. Appx280(13:23-25). The memory’s minimum operating voltage thus essentially serves as a threshold for switching the memory power supply back-and-forth between the first and second regulated voltages.

The PTAB accepted the petition’s contention that Harris teaches limitations 1[h] and 1[i]. Appx177-78; *see* Appx1048-51. But Harris nowhere teaches *a memory’s minimum operating voltage* that serves as a threshold for switching the memory’s power supply. The PTAB’s *ex post* view that a skilled artisan would *modify* Harris in multiple ways to reach that result is neither supported by evidence nor adequately explained.

a. The PTAB started with Harris’s “low-power” mode. The PTAB conceded that low-power mode—which Harris mentions in a single sentence—does not teach switching the memory power supply based on *any* threshold, much less the memory’s minimum operating voltage. Appx176-78; Appx4128-29(4:63-5:4). Harris discloses only *how* to enter low-power mode: “software” executes a command that causes the power-supply “switch” to provide the second voltage to the memory. Appx4128(3:15-17). Harris says nothing about *conditions* for triggering low-power mode, or how or when to *exit* that mode.

The PTAB declared that artisans of ordinary skill would combine Harris’s “low-power” mode with Harris’s “failure mode.” Appx176-78; Appx1048-51. But

failure mode *also* does not teach the minimum operating voltage serving as a threshold for switching memory’s power supply. It relies on an entirely different “threshold”: one indicating that “VDD power is *failing*.” Appx4128(3:57-65) (failure mode triggered when “*a failure* is detected on the VDD pin”) (emphasis added). Moreover, because failure mode is triggered when VDD “is failing,” it nowhere teaches switching the memory power supply *back* when VDD rises *above* the minimum operating voltage, as the claims require.

Harris thus nowhere teaches the claimed minimum-operating-voltage switching threshold. Its low-power mode uses no threshold, and its failure mode uses a completely different threshold. The PTAB identified no evidence showing a skilled artisan would read Harris to suggest such a limitation. And it identified no *other* reference disclosing the limitation. The PTAB conjured that limitation not from the art, but from thin air. The absence of that “key limitation” from the prior art, and lack of evidence or reasoned basis for supplying it nonetheless, precludes a finding of obviousness. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1363, 1366 (Fed. Cir. 2016). The PTAB’s failure to “make findings of relevant facts,” or to explain its “reasoning” for how Harris discloses using the minimum memory operating voltage as a threshold, requires vacatur as well. *Lee*, 277 F.3d at 1346.

b. The PTAB uncritically accepted the petition’s assertion that “Harris” teaches “switching to an alternative power supply ‘when’ the supply voltage falls

below a memory retention threshold.” Appx1050; *see* Appx174. But the PTAB offered no basis for crediting that assertion. The petition’s only support was Harris’s statement that “‘Vstby . . . is switched to power the memory 106 *to* sustain memory contents *when* either main or VDD power *is failing*.’” Appx1050 (citing Appx4128(3:57-60)) (emphasis added). That refers to using *power failure* as the threshold—switching “*when* . . . power is failing.” Memory retention is mentioned only in describing failure mode’s *purpose*: “*to* avoid memory data loss” from power failure. Appx4128(3:66-67) (emphasis added). VLSI’s expert testified, unrebutted, that power “failures” can be “detected” well before “voltage levels approach a minimum operating voltage of memory.” Appx8586-87(¶¶76-77). Harris nowhere suggests detecting failure but *waiting* to switch power supplies until a *different* threshold (minimum operating voltage) is hit.

The PTAB’s assertion that “the desir[e]” for “power savings” would have led skilled artisans to modify Harris’s “low-power feature” to switch power supplies based on “minimum [memory] operating voltage,” Appx176, turns obviousness analysis on its head. That skilled artisans may have been “motivated” to achieve power savings does not mean it was obvious to do so with the claimed power-supply switching threshold. Insofar as the PTAB relied on a skilled artisan’s “ordinary skill” or “common sense” to engraft such a threshold onto Harris’s low-power mode, that is impermissible. The PTAB cannot, without “reasoned analysis and evidentiary

support,” invoke “common sense” to supply a “key limitation” “missing from the prior art reference.” *Arendi*, 832 F.3d at 1362, 1366; *see Nuvasive*, 842 F.3d at 1383.¹³

2. *The PTAB Identified No Motivation To Modify Harris or To Combine Harris with Abadeer*

The PTAB’s decision required *importing* the power-failure-threshold-based switching from Harris’s failure mode into Harris’s low-power mode, *modifying* them further to use a *completely different* threshold, and then *combining* the reimagined Harris with Abadeer. *See* Appx178. But it failed to explain “*why* a person of ordinary skill in the art would have” made those combinations and modifications to “arriv[e] at the claimed invention.” *In re Stepan Co.*, 868 F.3d 1342, 1346 & n.1 (Fed. Cir. 2017).

a. The PTAB stated that it “agree[d]” with PQA that “implementing the claimed threshold-based switching” from Harris’s failure mode “in connection with the low-power mode would have involved using that known technique to achieve a

¹³ The PTAB did not—and could not—rely on Abadeer to teach the minimum operating voltage serving as a power-supply-switching threshold. The PTAB cannot “adopt arguments . . . not[] raised” in the petition. *In re Magnum Oil Tools Int’l Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016). The petition relied on “Harris” alone to teach “switching to an alternative power supply ‘when’ the supply voltage falls below a memory retention threshold” as limitations 1[h] and 1[i] require. Appx1049-51. The petition relied on Abadeer only for its “techniques for determining the minimum operating voltage,” pertaining to limitations 1[c], 1[d.1], and 1[d.2]. Appx1037.

predictable result (avoiding memory data loss).” Appx177-78. But it is “insufficient” for the PTAB to accept a challenger’s arguments without “‘explain[ing] why’” it agrees. *Icon Health*, 849 F.3d at 1047.

The PTAB nowhere explained *why* a skilled artisan would have been motivated to use the *hardware-based* backup switch of Harris’s failure mode with Harris’s *software-based* low-power mode, especially given the modes’ different use cases (power-failure response versus power saving). *See* Appx7025-27(¶¶35-43). Nor did it explain “how the combination of the two . . . was supposed to work,” *Personal Web*, 848 F.3d at 994, when the two embodiments concededly rely on “different mechanisms”—a hardware trigger versus a software command—to control voltage, Appx175-76.

b. The PTAB failed to explain why a skilled artisan would be motivated to combine Harris (as modified) with Abadeer. Appx175-78. The PTAB noted PQA’s motivation-to-combine arguments, Appx174, but never said which it agreed with or why. That is “insufficient.” *Icon Health*, 849 F.3d at 1047.

The PTAB’s only sentence even arguably addressing that issue fleetingly mentions PQA’s expert’s testimony that “achieving the desired power savings or low-power operating parameters would have motivated skilled artisans to select a specific minimum operating voltage for the low-power feature.” Appx176 (citing Appx4858(¶9)). But “one conclusory statement by [an] expert” cannot support a

finding of motivation to combine. *NuVasive*, 842 F.3d at 1382, 1384; *see TQ Delta*, 942 F.3d at 1358-59. Expert testimony about a “generic” motivation to achieve a benefit—like saving power—does not explain “why a person of ordinary skill in the art would have combined elements from specific references in the way the claimed invention does.” *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012). Observing a result’s “general desirability” is insufficient. *Rovalma, S.A. v. Bohler-Edelstahl GmbH*, 856 F.3d 1019, 1026 (Fed. Cir. 2017).

3. *The Decision Regarding Claims 2-16 Is Unreasoned*

The PTAB relied on Abadeer, Harris, and Zhang, plus additional references Cornwell (for claims 2, 11, and 12) and Bilak (for claim 8), to satisfy the additional limitations of claims 2-16. Appx194-96; *see* Appx280. But it did not address *any* of the additional limitations, Cornwell and Bilak’s teachings, or why a skilled artisan would be motivated to combine the references to produce the claimed inventions. The PTAB merely stated that PQA’s arguments were “not challenge[d],” without explaining which arguments it found persuasive and why. Appx194-95; *see* Appx170-71.

Icon Health forecloses that shortcut. There, as here, the “PTAB’s sole reason for its finding” that a combination made claims obvious “was that [the patent owner] ‘d[id] not challenge’ the combination rationale.” 849 F.3d at 1047. This Court held

that “insufficient.” *Id.* Although “the PTAB is permitted to credit a [challenger’s] argument as part of its reasoned explanation,” it “still must explain[] *why* [it] accepts the prevailing argument.” *Id.* (emphasis added). Mere assertion that the PTAB “‘agree[s] with’” the challenger’s arguments “is no explanation at all.” *Id.*

In IPRs, moreover, “the petitioner” has “the burden of proving . . . unpatentability.” 35 U.S.C. § 316(e). The “patent owner carries no obligation to raise any objection . . . at all.” *Fanduel, Inc. v. Interactive Games LLC*, 966 F.3d 1334, 1341-42 (Fed. Cir. 2020). The PTAB must hold the petitioner to its burden, “especially” on obviousness, including “whether there would have been a motivation to combine.” *Magnum Oil*, 829 F.3d at 1376. Failure to provide “reasoned analysis” risks impermissible “*ex post* reasoning.” *In re Van Os*, 844 F.3d 1359, 1361-62 (Fed. Cir. 2017). For that reason, too, the PTAB’s decision cannot be sustained.

CONCLUSION

The decisions below, including the final written decision invalidating the patent claims and the Director’s decisions addressing sanctions, should be reversed or vacated.

July 10, 2024

Kenneth J. Weatherwax
Nathan Nobu Lowenstein
LOWENSTEIN & WEATHERWAX LLP
1016 Pico Boulevard
Santa Monica, CA 90405
(310) 307-4500

Alan J. Heinrich
Dominik Slusarczyk
IRELL & MANELLA LLP
1800 Avenue of the Stars, Suite 900
Los Angeles, CA 90067
(310) 277-1010

Babak Redjaian
IRELL & MANELLA LLP
840 Newport Center Drive, Suite 400
Newport Beach, CA 92660
(949) 760-0991

Respectfully submitted,

/s/ Jeffrey A. Lamken

Jeffrey A. Lamken
Counsel of Record
Lucas M. Walker
Rayiner Hashem
MOLOLAMKEN LLP
The Watergate, Suite 500
600 New Hampshire Avenue, N.W.
Washington, D.C. 20037
(202) 556-2000
jlamken@mololamken.com

Jordan Rice
Thomas P. Schubert
MOLOLAMKEN LLP
300 N. LaSalle Street, Suite 5350
Chicago, IL 60654
(312) 450-6700

Counsel for Appellant VLSI Technology LLC

ADDENDUM

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CONFIDENTIAL MATERIAL OMITTED

Material has been omitted from this addendum consistent with the protective order entered in the United States Patent and Trademark Office below and the Director's filing of sealed versions of certain orders. Pages Appx78-84, Appx91-93, Appx100, Appx103, Appx112-14, Appx230-33, and Appx235-38 omit information in two Director decisions, Papers 101 and 130, concerning confidential discussions; the Director redacted that information in the public versions of the decisions (Papers 102 and 131, included herein).

Additionally, pages Appx200-53 omit a header noting that the sealed Director decision filed at Paper 130 contains confidential information subject to the protective order. The Director omitted that header, which does not itself contain confidential information, in the public version of the decision included herein, Paper 131.

Trials@uspto.gov
571-272-7822

Paper No. 13
Entered: June 6, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORPORATION,
Petitioner,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2022-00479
Patent 7,523,373 B2

Before THOMAS L. GIANNETTI, BRIAN J. MCNAMARA, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

Granting Motion for Joinder
35 U.S.C. § 315(c); 37 C.F.R. § 42.122

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I. INTRODUCTION

Intel Corporation (“Petitioner” or “Intel”) filed a Petition (Paper 3, “Pet.”) requesting institution of *inter partes* review of claims 1–13, 15, and 16 (“the challenged claims”) of U.S. Patent No. 7,523,373 B2 (Ex. 1001, “the ’373 patent”). Petitioner also filed a Motion for Joinder with *Patent Quality Assurance, LLC v. VLSI Tech. LLC*, IPR2021-01229 (“PQA IPR”). Paper 4 (“Mot.”). VLSI Technology LLC (“Patent Owner”) filed a Preliminary Response. Paper 12 (“Prelim. Resp.”). Patent Owner also filed an Opposition to the Motion for Joinder. Paper 8 (“Opp.”). Petitioner filed a Reply to Patent Owner’s Opposition. Paper 10 (“Reply”).

An *inter partes* review may not be instituted unless “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we conclude that Petitioner has shown a reasonable likelihood it will prevail in establishing the unpatentability of at least one challenged claim, and we institute *inter partes* review.

We also have authority to consider Petitioner’s joinder motion under 35 U.S.C. § 315(c), which provides that “the Director, in his or her discretion, may join as a party to that inter partes review any person who properly files a petition under section 311 that the Director . . . determines warrants the institution of an inter partes review under section 314.”

For the reasons that follow, we (1) grant the Petition and institute *inter partes* review of the ’373 patent; and (2) grant Petitioner’s Motion for Joinder.

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A. RELATED MATTERS

The parties both identify the following matters related to the '373 patent: *VLSI Technology LLC v. Intel Corporation*, No. 6:19-cv-00254 (W.D. Tex.) consolidated with other cases as 1:19-cv-00977 (W.D. Tex.) and later deconsolidated as 6:21-cv-00057, Dkt. 1 (W.D. Tex. Apr. 11, 2019) (trial concluded with jury verdict); *Intel Corp. v. VLSI Tech. LLC*, IPR2020-00158 (PTAB May 20, 2020) (institution denied), *cert. denied* 142 S. Ct. 1363 (2022) (No. 21-888); *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01056 (PTAB) (institution denied); *Pat. Quality Assurance, LLC v. VLSI Tech. LLC*, IPR2021-01229 (PTAB) ("PQA IPR") (trial instituted). Pet. 1; Paper 6. Patent Owner also identifies *VLSI Tech. LLC v. Intel Corp.*, No. 6:21-cv-00299 (W.D. Tex.) as a matter related to the '373 patent.

B. ASSERTED GROUNDS

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	References/Basis
1–7, 9–11, 13, 15–16	103	Harris, ¹ Abadeer, ² Zhang ³
2, 11–12	103	Harris, Abadeer, Zhang, Cornwell ⁴
8	103	Harris, Abadeer, Zhang, Bilak ⁵

Pet. 4. Petitioner relies also on the Declarations of Dr. Adit Singh and Dr. Sylvia Hall-Ellis. Exs. 1002, 1027.

¹ US 5,867,719, issued Feb. 2, 1999 (Ex. 1003).

² US 2006/0259840 A1, published Nov. 16, 2006 (Ex. 1004).

³ US 2003/0122429 A1, published July 3, 2003 (Ex. 1005).

⁴ US 7,702,935 B2, issued Apr. 20, 2010 (Ex. 1006).

⁵ US 2005/0188230 A1, published Aug. 25, 2005 (Ex. 1007).

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C. REAL PARTIES IN INTEREST

Petitioner identifies only itself as the real party in interest. Pet. 1. Patent Owner identifies VLSI Technology LLC and CF VLSI Holdings LLC as real parties in interest. Paper 6.

II. DISCUSSION

In deciding whether to join a party to an *inter partes* review, § 315(c) requires “two different decisions,” first “whether the joinder applicant’s petition for IPR ‘warrants’ institution under § 314,” and then whether to “exercise . . . discretion to decide whether to ‘join as a party’ the joinder applicant.” *See Facebook, Inc. v. Windy City Innov., LLC*, 973 F.3d 1321, 1332 (Fed. Cir. 2020). “The statute makes clear that the joinder decision is made *after* a determination that a petition warrants institution, thereby affecting the manner in which an IPR will proceed.” *Id.* (citing *Thryv v. Click-to-Call Techs., LP*, 140 S. Ct. 1367, 1377 (2020)).

A. WHETHER THE PETITION WARRANTS INSTITUTION

The Petition in this proceeding asserts substantially the same grounds of unpatentability as those upon which we instituted review in the PQA IPR. *Compare* Pet. 4, 24–73 (showing that both this Petition and Intel’s original petition challenge claims 1–13, 15, and 16), *with* PQA IPR 13–24 (showing that the PQA IPR challenges claims 1–16). Indeed, Petitioner contends “that both petitions present substantively the same patentability challenges.” Mot. 1. We agree that the Petition here asserts challenges and evidence nearly identical to those asserted in the PQA IPR.

Having already considered the merits of those challenges and evidence in the PQA IPR and having determined that the threshold for

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institution of *inter partes* review has been met, we determine that the Petition here also presents a reasonable likelihood of prevailing on the challenges of at least one claim of the '373 patent. *See Apple Inc. v. Uniloc 2017 LLC*, IPR2020-00854, Paper 9 (Oct. 28, 2020) (precedential).

We conclude that the merits of the Petition warrant institution.

B. DISCRETIONARY DENIAL

Notwithstanding the merits of the Petition, Patent Owner argues that we should exercise our discretion to deny institution under 35 U.S.C. § 314(a) and, accordingly, also deny joinder. Prelim. Resp. 7–25; Opp. 6–15. Patent Owner's argument relies on the *Fintiv* and *General Plastic* factors. Opp. 6–11 (citing *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”); *Gen. Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16 (PTAB Sept. 6, 2017) (precedential as to § II.B.4.i) (“*General Plastic*”). Patent Owner also relies on 35 U.S.C. § 325(d), and specifically, on the Federal Circuit's application of § 325(d) in *In re Vivint, Inc.*, 14 F.4th 1342 (Fed. Cir. 2021). Prelim. Resp. 29–32.

Before determining whether to join Intel as a party to the PQA IPR, even though the Petition is a “me-too petition,” we first determine whether the record warrants the exercise of our discretion to deny the Petition under § 314(a) or § 325(d).⁶

⁶ Many of Patent Owner's arguments in the Preliminary Response do not distinguish between the issues of whether the Petition warrants institution and whether, if so, we should grant joinder. We therefore address those arguments here, and, below, separately address arguments directed solely at the joinder decision.

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1. District-court litigation (Fintiv)

Patent Owner argues that we should deny institution under *Fintiv*. Prelim. Resp. 7–15. The argument is based on a prior litigation in which a jury determined that Intel infringed the ’373 patent (“the Intel litigation”). Ex. 1031 (March 2, 2021, verdict).

Patent Owner addresses each of the six *Fintiv* factors for evaluating the effect of parallel litigation involving the challenged claims on discretionary denial. *See* Prelim. Resp. 7–15; *Fintiv*, Paper 11 at 5–6. Petitioner submits that the factors have limited applicability here because invalidity was not determined by the verdict in the Intel litigation. Prelim. Reply 3.

Fintiv factor 1 asks if there is a possibility of a stay in the parallel litigation. Because the Intel litigation is complete, there is no possibility of a stay. *See* Prelim. Resp. 8–9. Similarly, Intel was the defendant in the district court litigation, which has a known outcome and investment. *Id.* at 8–12 (discussing *Fintiv* factors 1, 2, 3, and 5). On the other hand, invalidity was not presented to the jury. *See id.* at 11–12; Pet. 5. There would be no overlap, therefore, between this proceeding and the issues that were tried in the Intel litigation. *See* Pet. 5; Mot. 12; Prelim. Resp. 11–12 (discussing *Fintiv* factor 4).

Here, the Intel litigation did not resolve issues related to invalidity, and thus did not resolve any issues presented by this proceeding, so there is no chance of an inconsistent outcome. Indeed, “redoing the work of another tribunal” (*Fintiv*, Paper 11 at 14) would only arise when that tribunal has resolved a dispute at issue before the Board. Patent Owner has not argued that resolving a dispute in this proceeding would conflict with any aspect of

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the Intel litigation. Thus, we do not agree with Patent Owner that, because the litigation parties and the District Court invested “enormous effort,” instituting review here would mean redoing the work of another tribunal. Opp. 10–11.

Patent Owner presents policy arguments in support of its position. *See* Prelim. Resp. 12–15 (discussing *Fintiv* factor 6). Patent Owner argues that instituting review here would lead to harassment of patent owners who prevail at trial, and that such an outcome fundamentally conflicts with Board precedent and policy. Prelim. Resp. 13–15. On the record before us, we do not agree that prevailing on infringement grounds in an earlier litigation insulates Patent Owner from further patentability challenges that were not resolved in the litigation.

Considering all of the *Fintiv* factors, we are persuaded that we should not exercise our discretion to deny institution in light of the Intel litigation.

2. *Prior petitions (General Plastic)*

On April 11, 2019, Intel was served with a complaint alleging infringement of the ’373 patent. Ex. 2037. In IPR2020-00158, Intel challenged the ’373 patent by filing a petition for *inter partes* review with the Board, but the Board denied institution, by which point Intel was barred under 35 U.S.C. § 315(b)⁷ from filing any further petitions against the ’373 patent. *Intel Corp. v. VLSI Technology LLC*, IPR2020-00158, Paper 16 (PTAB May 20, 2020) (the “Intel IPR”). Importantly, however, the Board

⁷ Section 315(b) of 35 U.S.C. establishes a one-year time limit for a party to file a petition for *inter partes* review of a patent after service on that party of a complaint charging infringement of the patent. This one-year time limitation does not apply to a request for joinder. *See* 35 U.S.C. § 315(b).

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denied institution applying *Fintiv*, based on parallel district-court litigation, not on the merits of the petition. *See* IPR2020-00158, Paper 16 at 4–14; Opp. 1 (acknowledging that the Board rejected Intel’s prior petition challenging the ’373 patent under *Fintiv*, “in view of a then-upcoming district court trial”).

Following a jury verdict against Intel on March 2, 2021, PQA filed its petition challenging the ’373 patent on July 7, 2021. IPR2021-01229, Paper 1. The Board granted that petition and instituted the PQA IPR on January 26, 2022. IPR2021-01229, Paper 10. Intel filed this Petition and its Motion for Joinder the same day.

Patent Owner argues that we should exercise discretion to deny institution because the Petition presents the same challenges as the prior petition (IPR2020-00158) for which the Board denied review. Prelim. Resp. 15–25; Opp. 6–9. In that regard, Patent Owner relies on the framework from *General Plastic*, Paper 19 at 16.

Factor 1: whether the same petitioner previously filed a petition directed to the same claims of the same patent;

Factor 2: whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known of it; and

Factor 3: whether at the time of filing of the second petition the petitioner already received the patent owner’s preliminary response to the first petition or received the Board’s decision on whether to institute review in the first petition

Patent Owner argues that *Apple Inc. v. Uniloc 2017 LLC*, IPR2020-00854, Paper 9, supports denial when considering the second petition filed by a party. Prelim. Resp. 16. In *Uniloc*, the Board had denied Apple’s first petition “because the evidence and arguments presented failed to meet

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substantively the reasonable likelihood threshold required for institution.” *Id.*; *Uniloc*, Paper 9 at 6. Here, Petitioner’s first petition was denied in light of a potential overlap with district-court litigation. IPR2020-00158, Paper 16 at 4–14. The Board did not consider the substantive merits. *Id.* Thus, this case presents a situation notably different from *Uniloc*. The same is true of *General Plastic*, where the petitions that were denied followed a first wave of petitions by the same petitioner that were denied on the merits. *General Plastic*, Paper 9 at 2–3.

Although Petitioner has directed this Petition to the same claims and relies on the same art as in its first petition, that the Board did not substantively address the merits of the prior Intel petition, in our view, weighs against discretionary denial here. The district-court trial that led to the denial of its initial petition is over and did not resolve the challenges presented here. Allowing Petitioner the opportunity to pursue a decision on the merits from the Board at this time—by joining PQA’s substantially identical petition—best balances the desires to improve patent quality and patent-system efficiency against the potential for abuse of the review process by repeated attacks on patents. *See General Plastic*, Paper 19 at 16–17.

Patent Owner argues that we should follow *HTC Corp. v. Ancora Techs., Inc.*, IPR2021-00570, Paper 17 at 9–10 (PTAB June 10, 2021), in applying *Uniloc* to a joinder petition. Opp. 6. In *HTC*, the petitioner’s prior CBM petition was denied without reaching its substantive merits. *HTC*, Paper 17 at 8–9. Significantly, however, in *HTC*, the Board relied on that petitioner’s failure to explain a four-year delay after that denial before filing an IPR petition. *Id.* at 9. Thus, the decision in *HTC* turned largely on the petitioner’s delay. *Id.* As discussed below, we determine that Intel

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adequately explains the time elapsed before filing the present Petition. Thus, the reasoning in *HTC* does not weigh in favor of denial here.

In *HTC*, the Board additionally noted that the petitioner benefited from other petitioners' filings during that delay. *Id.* at 9–10. Patent Owner argues that because Petitioner reviewed both Patent Owner's preliminary responses and also the Board's institution decisions from the first petition and PQA's IPR, *General Plastic* factor 3 strongly supports discretionary denial. Prelim. Resp. 18–22; Opp. 7. With respect to factor 3, “we are concerned here by the shifts in the prior art asserted and the related arguments in follow-on petitions.” *General Plastic*, Paper 19 at 17 (finding that the petitioner had found new prior art as a result of two searches conducted after the Board issued its Decisions Denying Institution); *HTC*, Paper 17 at 10 (finding that the petitioner should have known of prior art cited for the first time in its follow-on petition at the time of filing its first petition).

Although we agree with Patent Owner that the opportunity for “roadmapping” existed due to the time gap in filing the PQA petition, we do not agree that roadmapping affects our decision here.⁸ The PQA IPR presents challenges that are nearly identical to Intel's initial petition, and Intel's current petition follows them in step. Patent Owner points out some changes to the language describing the operation of one reference, Harris, in the PQA petition, but those changes are minor and do not alter

⁸ “Roadmapping” refers to the practice of taking advantage of an opponent's prior filings to obtain a “roadmap” of the opponent's case. While excessive roadmapping is undesirable, public disclosures of a party's litigation positions are unavoidable whenever a lawsuit or a petition is filed.

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fundamentally the way in which the Harris reference is being asserted. *See* Prelim. Resp. 19–21 (citing Pet. 41). Patent Owner also points to changes in how the Petition addresses Harris’s failure operation, along with incorporating Zhang’s voltage regulators. *Id.* at 21 (citing Pet. 45–46). When instituting review in the PQA IPR, however, we explained that we did not rely on that aspect of Petitioner’s contentions. Inst. 18–19. In other words, to the extent that the timing of PQA’s petition allowed access to Intel’s initial petition and Patent Owner’s preliminary response, it did not affect our decision to institute. And Intel’s Petition makes no changes from the instituted PQA petition. Thus, the roadmapping concerns addressed in *General Plastic* and *HTC* are not present here.

In addition, we view substantive consideration of the merits of a petition as an important factor in maintaining the balance between improving patent quality and the potential for abuse. To determine otherwise would prioritize insulating patent owners from potential abuse without also addressing the public benefit to improving patent quality.

We conclude that factors 1–3 weigh against discretionary denial.

Factor 4: the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition; and

Factor 5: whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent

As noted in *General Plastic*, the Board considers factors 4 and 5 “to assess and weigh whether a petitioner should have or could have raised the new challenges earlier.” *General Plastic*, Paper 19 at 18. Applied to the present facts, however, those factors have limited relevance. The PQA IPR,

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to which Petitioner Intel seeks joinder, raises the same prior art asserted in Intel's initial petition.⁹ Thus, there are no "new challenges" at issue here.

Although the Petition raises no new challenges, this proceeding arises substantially after Intel's initial IPR petition. Unlike the delay that the Board found important in *HTC*, however, the timing here is not due to Petitioner's delay. *See HTC*, IPR2021-00570, Paper 17 at 9. Because Intel was time-barred under § 315(b), Intel did not have an opportunity to file an IPR petition after its initial petition was denied. Indeed, that opportunity did not arise for Intel until we instituted review in the PQA IPR. Petitioner argues that it was reasonable for it to file its Petition and Motion for Joinder after the Board instituted the PQA IPR because Petitioner was otherwise time barred. Mot. 8–9. That justification is consistent with the statute, which expressly provides an exception to the time bar for a request for joinder. 35 U.S.C. § 315(b).

Because the delay between Intel's initial petition and the present one resulted from our earlier refusal to consider the merits of Intel's challenge, along with the pendency of the district-court trial, we do not weigh that delay against Intel. We determine that Intel has adequately explained the time between its initial petition and the present joinder request.

Patent Owner argues that because Intel had the opportunity to present invalidity to a jury, but chose not to, it would receive an unfair benefit from participating in this proceeding. Prelim. Resp. 17–18; Opp. 8–9. We are not persuaded that Intel's decision weighs in favor of exercising our discretion to deny institution. We acknowledge that Intel had the opportunity to present

⁹ As we determined when instituting the PQA IPR, the timing for PQA's petition was reasonable. IPR2021-01229, Paper 10 at 9–10.

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its invalidity contentions to the jury at trial and chose not to do so; however, we will not second-guess Intel's trial strategy. Rather, we focus on the fact that Petitioner's first petition was denied under § 314(a), and the Intel litigation did not resolve issues presented by this proceeding. Accordingly, there is no possibility of duplicative efforts or conflicting decisions, which was the concern when the Board denied Petitioner's first petition. *See* IPR2020-00158, Paper 16.

Patent Owner also argues that Petitioner could have sought to avoid redundancies and obtain institution of review by stipulating not to raise the grounds asserted here at trial. Prelim. Resp. 17–18; Opp. 8–9. The Board's decision denying institution of Intel's initial petition occurred before the Board decided either *Sotera Wireless, Inc. v. Masimo Corporation*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential as to § II.A) or *Sand Revolution II, LLC v. Continental Intermodal Group – Trucking LLC*, Case IPR2019-01393, Paper 24 (PTAB June 16, 2020) (informative). Thus, Patent Owner uses the benefit of hindsight in arguing that Petitioner should have stipulated not to raise these grounds at trial. While that option was available to Petitioner, the significance of doing so was not clear until the precedential and informative decisions on the issue.

Because Petitioner has adequately explained the time gap between its petitions and is not broadening the challenge or causing delay by seeking to join the PQA IPR, we conclude that factors 4 and 5 weigh against discretionary denial.

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Factor 6: the finite resources of the Board; and
Factor 7: the requirement under 35 U.S.C. § 316(a)(11) to
issue a final determination not later than 1 year after the date
on which the Director notices institution of review

We are not persuaded that instituting this Petition will significantly affect the resources of the Board or our ability to issue a final determination within the one-year statutory timeline. We instituted the PQA IPR because we found the challenges reasonably likely to be successful, and we will continue expending resources to decide the merits of the PQA IPR regardless of joinder.

Patent Owner argues that “[l]ike in *Uniloc*, joinder in this circumstance would allow Petitioner [Intel] to continue a proceeding even after settlement with the primary petitioner.” Opp. 9 (alterations in original) (quoting *HTC*, IPR2021-00570, Paper 17 at 13); *accord* Prelim. Resp. 23–24. That statement is true for all joinder authorized by § 315(c). We are not persuaded to weigh it in favor of exercising our discretion to deny joinder here. Noting that PQA, who has not been accused of infringement, lacks standing to appeal a decision in this IPR, Patent Owner opposes joining Intel, who is accused of infringement and has standing to appeal, because “allowing joinder would even make what is non-appealable appealable.” Prelim. Resp. 24; *accord* Opp. 14–15. We do not consider Intel’s right to appeal our final decision to be a factor in assessing whether to grant Intel’s motion for joinder.

In addition, we are not persuaded that joining Petitioner would add significant issues or evidence burdening the Board. First, Patent Owner argues that joinder would implicate issues of estoppel and identification of real parties in interest (“RPI”). Opp. 13–15. To the extent that Patent Owner

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wishes to raise estoppel and RPI issues, the burden will be borne by Petitioner and Patent Owner primarily. The Board is experienced in handling such issues in a timely manner, so we are not persuaded that this weighs in favor of exercising our discretion to deny joinder.

Second, Patent Owner contends that the Petitioner has already added evidence to this case, but we see no indication of that in the record. Opp. 14. In contrast, Petitioner argues that joinder would assist the Board in resolving the IPR, while also stipulating that it would participate only “as an understudy.” Mot. 10 n.3, 15. We acknowledge that joining Intel may require some minor adjustments to accommodate an additional party, but Intel’s understudy role will not meaningfully increase the burden on the Board. Accordingly, we conclude that factors 6 and 7 weigh against discretionary denial.

Summary

Having considered all the *General Plastic* factors, based on the present record, we determine not to exercise our discretion to deny institution under § 314(a).

3. Consistent exercise of discretion (Vivint)

Patent Owner argues that we should deny institution under 35 U.S.C § 325(d) because *Vivint* “confirms that denial under § 325(d) is required here.” Prelim. Resp. 30. We do not agree.

In *Vivint*, the Federal Circuit held that “the Patent Office, when applying § 325(d), cannot deny institution of IPR based on abusive filing practices then grant a nearly identical reexamination request that is even more abusive.” *In re Vivint, Inc.*, 14 F.4th at 1354. The Federal Circuit found

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it important in *Vivint* that, when the Board denied Alarm.com’s IPR petition, the Board considered Alarm.com’s earlier petitions and reasoned that “allowing similar, serial challenges to the same patent, by the same petitioner, risks harassment of patent owners and frustration of Congress’s intent in enacting the [AIA].” *Id.* at 1353 (quoting IPR2016-01091, Paper 11 at 12). Particularly, in *Vivint*, the same petitioner filed three petitions challenging the same patent, of which the Board denied two on the merits and the third for “undesirable, incremental petitioning,” “us[ing] prior Board decisions as a roadmap to correct past deficiencies.” *Id.* at 1346 (quoting IPR2016-01091, Paper 11 at 12).

The facts here do not invoke *Vivint*. The Intel IPR was not denied on the merits or for abusive filing practices, but rather was denied to avoid overlap with a parallel district-court litigation. *See* IPR2020-00158, Paper 16 at 4–14. We instituted the PQA IPR after reasoning that the petition there presented challenges reasonably likely to be successful and that applying our framework for evaluating requests for discretionary denial did not counsel against institution for that case. Although this proceeding involves a petitioner that has before petitioned for review of the ’373 patent, this Petition seeks to join the existing PQA IPR because the Board has not substantively addressed the merits of the challenge. In addition, this Petition does not benefit from prior Board decisions identifying deficiencies. In denying Intel’s initial petition, we did not find that there were potentially abusive filing practices by the same challenger, as was at issue in *Vivint*.

Patent Owner has not identified how instituting review would be inconsistent with any prior decision on this patent. As explained above, in part because no invalidity issues were presented for the ’373 patent at trial,

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we reach a different conclusion under *Fintiv* than the previous application. Thus, instituting review would not amount to an abusive filing practice under *Vivint*.

C. WHETHER TO GRANT JOINDER

Patent Owner argues that, even if the Petition warrants institution, we should deny Intel's motion for joinder. Opp. 11–15. As Patent Owner notes, “the decision to grant joinder is discretionary.” *Id.* at 11 (quoting *LG Elecs., Inc. v. ATI Techs. ULC*, IPR2015-01620, Paper 10 at 5 (PTAB Feb. 2, 2016)). Patent Owner's Opposition to joinder raises many of the same arguments raised in the Preliminary Response and discussed above. *See* Opp. 2–11. We have addressed those arguments above in concluding that the Petition warrants institution.

According to Patent Owner, neither Intel's “rush” in filing its joinder request, nor its reliance on grounds unchanged from its initial IPR petition favors joinder. *Id.* at 12–13. We do not agree. Petitioner's timeliness in filing the Petition and requesting joinder minimized the potential disruption to an existing proceeding if joinder is granted. Although not determinative *per se*, those aspects of Petitioner's approach support granting joinder.

Patent Owner argues also that joinder here would disrupt the schedule and add new issues. *Id.* at 13–15. But Patent Owner does not explain how joining Intel will disrupt the schedule. As for new issues, Patent Owner asserts that joining Intel will “raise anew the question of Intel's relationship with PQA and the unknown persons controlling PQA.” *Id.* at 14. Other than speculation, Patent Owner does not point to anything, in the record or otherwise, indicating that such a relationship exists.

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Finally, Patent Owner argues that we may allow joinder of otherwise time-barred parties “only in limited circumstances.” Opp. 15 (quoting *Proppant*, IPR2018-00914, Paper 38 at 19). *Proppant*, however, expressed that narrow view of joinder only in the context of considering the impact of a time bar “on the first two questions” considered (same-party and new-issue joinder). *Proppant*, IPR2018-00914, Paper 38 at 3, 16; *accord id.* at 19 (tying limited exercise of joinder discretion to instances “when an otherwise time-barred petitioner requests same party and/or issue joinder”). We do not consider *Proppant* as limiting our discretion here, where neither same-party joinder nor new issues are involved.

Petitioner has properly filed a petition under 34 U.S.C § 311, and we are not persuaded that “[j]oining Intel ‘would obviate the careful statutory balance’ and ‘effectively circumvent the time limitation in § 315(b),”” because the statute provides for an exception to the time bar for joinder. Opp. 5 (quoting *Proppant*, IPR2018-00914, Paper 38 at 18).

III. CONCLUSION

For the reasons discussed above and in our decision instituting the PQA IPR, we conclude that Petitioner has shown a reasonable likelihood of prevailing with respect to at least one claim. We have also evaluated all of the parties’ submissions and determine that the record supports institution. We conclude that instituting review in this proceeding is in the interest of efficient administration of the Office and the integrity of the patent system. *See* 35 U.S.C. § 316(b). Accordingly, we institute *inter partes* review of all challenged claims under all grounds set forth in the Petition.

Our determination at this stage of the proceeding is based on the evidentiary record currently before us. This decision to institute trial is not a

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final decision as to patentability of any claim for which *inter partes* review has been instituted. Our final decision will be based on the full record developed during trial.

Upon considering the parties' arguments and the evidence presented, we are persuaded that it is appropriate under these circumstances to join Petitioner to the PQA IPR. Joinder to the PQA IPR will result in the just, speedy, and inexpensive resolution of Petitioner's challenge. *See* 37 C.F.R. § 42.1(b). Accordingly, for the reasons discussed above, we grant Petitioner's Motion for Joinder and join Petitioner as a party to the PQA IPR.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '373 patent is instituted on the claims and grounds set forth in the Petition;

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial commencing on the entry date of this decision;

FURTHER ORDERED that Petitioner's Motion for Joinder with IPR2021-01229 is granted, and Petitioner is hereby joined as a petitioner in IPR2021-01229;

FURTHER ORDERED that there are no changes to the grounds on which trial in IPR2021-01229 was instituted, and no other grounds are added in IPR2021-01229;

FURTHER ORDERED that the Scheduling Order entered in IPR2021-01229 (Paper 15), including any schedule changes agreed by the

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parties in that proceeding pursuant to the Scheduling Order, shall govern the trial schedule in Case IPR2021-01229;

FURTHER ORDERED that Petitioner's role in IPR2021-01229 shall be limited as stated by Petitioner in the Motion for Joinder (Paper 4 at 10 n.3, 15) unless and until PQA is terminated from that proceeding;

FURTHER ORDERED that the case caption in IPR2021-01229 shall be changed to reflect joinder of Intel Corporation as petitioner in accordance with the attached example;

FURTHER ORDERED that a copy of this Decision be entered into the record of IPR2021-01229; and

FURTHER ORDERED that this proceeding is terminated under 37 C.F.R. § 42.72 and 37 C.F.R. § 42.122, and all further filings shall be made in IPR2021-01229.

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PETITIONER:

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com

PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Parham Hendifar
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
hendifar@lowensteinweatherwax.com

Trials@uspto.gov
571-272-7822

Paper No. 13
Entered: June 6, 2022

[Sample Case Caption]

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229*
Patent 7,523,373 B2

* Intel Corporation, which filed a petition in IPR2022-00479, has been joined as a party to this proceeding.

Trials@uspto.gov
571-272-7822

Paper 40
Date August 4, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229¹
Patent 7,523,373 B2

Before KATHERINE K. VIDAL, *Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office*, SCOTT R. BOALICK, *Chief Administrative Patent Judge*, and JACQUELINE WRIGHT BONILLA, *Deputy Chief Administrative Patent Judge*.

PER CURIAM.

¹ Intel Corporation (“Intel”), which filed a petition in IPR2022-00479, has been joined as a party to this proceeding.

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ORDER

The Office received a rehearing request and a request for Precedential Opinion Panel (POP) review of an issue raised in this case. *See* Paper 33; Ex. 3002. The POP request seeks review of the Board's decision in IPR2022-00479, by which the Board granted institution of an *inter partes* review and joined Intel as a petitioner to this case. *See* Paper 30; IPR2022-00479, Paper 13. The requests were referred to the POP panel referenced above.

Upon consideration of the requests, it is:

ORDERED that the request for POP review is denied; and

FURTHER ORDERED that the original panel maintains authority over all matters, including considering the submitted rehearing request.

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For PETITIONER:

Bruce Slayden
Truman Fenton
Tecuan Flores
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tfenton@sgbfirm.com
tflores@sgbfirm.com

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com

For PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Edward Hsieh
Parham Hendifar
Patrick Maloney
Jason C. Linger
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
smith@lowensteinweatherwax.com
rose@lowensteinweatherwax.com
hsieh@lowensteinweatherwax.com
hendifar@lowensteinweatherwax.com
maloney@lowensteinweatherwax.com
linger@lowensteinweatherwax.com

Director_PTABDecision_Review@uspto.gov
571-272-7822

Paper No. 100
Date: December 15, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED
STATES PATENT AND TRADEMARK OFFICE

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229¹
Patent 7,523,373 B2

Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

ORDER
Staying the Proceeding

¹ Intel Corporation (“Intel”), which filed a petition in IPR2022-00479, has been joined as a party to this proceeding. Paper 30.

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On January 26, 2022, the Patent Trial and Appeal Board (“Board”) issued a Decision instituting an *inter partes* review (“IPR”) of claims 1–16 (“challenged claims”) of U.S. Patent No. 7,523,373 B2 (“the ’373 patent”), based on a Petition filed by Patent Quality Assurance, LLC (“PQA”). Paper 10 (“Institution Decision”). VLSI Technology LLC (“VLSI” or “Patent Owner”) subsequently filed a rehearing request and a request for Precedential Opinion Panel (“POP”) review. *See* Paper 13 (“Req. Reh’g”); Ex. 3001. On June 6, 2022, the Board joined Intel as a Petitioner in this case. Paper 30.

I initiated Director review of the Board’s Institution Decision on June 7, 2022. Paper 31. My Order initiating Director review did not stay the *inter partes* review, which has been underway, with an oral hearing held on October 26, 2022. *Id.* at 3; Paper 92. Concurrent with my Order initiating Director review, the POP dismissed the rehearing and POP review requests. Paper 32. I also ordered the parties to provide briefing to assist me with my review, and to respond to interrogatories and to exchange information to assist me in evaluating questions of first impression. Paper 35, 7–11. My review of the Board’s Institution Decision remains pending.

Due to the importance of the issues to the Office in fulfilling its mission, the underlying proceeding before the Board is stayed while I complete my review.

For the foregoing reasons, it is hereby:

ORDERED that the underlying proceeding is stayed pending my decision on Director review.

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PETITIONER:

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com

Bruce Slayden
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Parham Hendifar
Patrick Maloney
Jason Linger
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
smith@lowensteinweatherwax.com

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rose@lowensteinweatherwax.com

hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

[Director PTABDecision Review@uspto.gov](mailto:Director_PTABDecision_Review@uspto.gov)
571-272-7822

Paper No. 102
Date: December 22, 2022

PUBLIC VERSION

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED
STATES PATENT AND TRADEMARK OFFICE

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229¹
Patent 7,523,373 B2

Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

DECISION

Determining Abuse of Process, Issuing Sanctions,
Ordering Petitioner Patent Quality Assurance, LLC to Show Cause, and
Lifting Stay

¹ Intel Corporation (“Intel”), which filed a Petition in IPR2022-00479, has been joined as a party to this proceeding. Paper 30.

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I. INTRODUCTION

On January 26, 2022, the Patent Trial and Appeal Board (“PTAB” or “Board”) issued a Decision granting institution of an *inter partes* review (“IPR”) of claims 1–16 (“challenged claims”) of U.S. Patent No. 7,523,373 B2 (“the ’373 patent”), based on a Petition filed by Patent Quality Assurance, LLC (“PQA”). Paper 10 (“Institution Decision”). VLSI Technology LLC (“VLSI” or “Patent Owner”) subsequently filed a rehearing request and a request for Precedential Opinion Panel (“POP”) review. *See* Paper 13 (“Req. Reh’g”); Ex. 3001. On June 6, 2022, the Board joined Intel as a Petitioner in this case. Paper 30. I initiated Director review of the Board’s Institution Decision on June 7, 2022. Paper 31. Concurrent with my Order, the POP dismissed the rehearing and POP review requests. Paper 32.

I explained that Director review would address questions of first impression as to what actions the Director, and by delegation the Board, should consider when addressing allegations of abuse of process or conduct that otherwise thwarts the goals of the United States Patent and Trademark Office (“USPTO” or “Office”) and/or the America Invents Act (“AIA”). Paper 35, 7. Due to the importance of the issues to the Office in fulfilling its mission, I ordered the parties to respond to interrogatories and to exchange information (“Mandated Discovery”) to assist me in evaluating these questions of first impression. *Id.* at 8–11; *see also* Paper 37.

For the reasons discussed in more detail below, I determine that PQA has engaged in discovery misconduct by failing to comply with my Order

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for interrogatories and Mandated Discovery. *See* Paper 35, 8–11. Failure to comply with an order is sanctionable. 37 C.F.R. § 42.12(a)(1).

Accordingly, when analyzing whether PQA’s conduct amounted to an abuse of process, I apply a negative inference and hold facts to have been established adverse to PQA. *See* 37 C.F.R. § 42.12(b)(1) (providing that sanctions may include “[a]n order holding facts to have been established in the proceeding”); Paper 35, 10 (“Any attempt to withhold evidence based on a narrow interpretation of the requests will be reviewed in conjunction with any other subject conduct and may, alone or in combination with other conduct, be sanctionable.”); Paper 39, 3–4 (“As highlighted in the Scheduling Order, failure to comply with my Order may be sanctionable. . . . For example, and without limitation, sanctions may include ‘[a]n order holding facts to have been established in the proceeding.’”).

Based on the evidence of record, and the facts held to have been established, I determine that PQA, through its counsel, abused the IPR process including by advancing a misleading argument and a misrepresentation of fact by representing, in its Petition, that it had exclusively engaged Dr. Singh, a witness relied on by another party, OpenSky Industries, LLC (“OpenSky”), in a parallel proceeding,² and which representation it later qualified as *not* being an exclusive engagement. *See*

² OpenSky filed a Petition for *inter partes* review challenging claims 1–3, 5, 6, 9–11, and 13 of the ’373 patent in IPR2021-01056. IPR2021-01056, Paper 2. On December 23, 2021, the Board denied OpenSky’s petition challenging the claims of the ’373 patent. IPR2021-01056, Paper 18. *See* below, section II.B.

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Woods Servs., Inc. v. Disability Advocs., Inc., 342 F. Supp. 3d 592, 606 (E.D. Pa. 2018) (“The essence of an abuse of process claim is that proceedings are used for a purpose not intended by the law.”). In addition, I determine that PQA abused the IPR process by filing this IPR, and threatening to file another IPR petition seeking to join a related, instituted IPR by OpenSky, in an attempt to extract payment from VLSI. Though the behavior here may not be as egregious as that of OpenSky (*see* IPR2021-01064, Paper 102), based on adverse inferences drawn because PQA did not comply with my order for discovery, I find that PQA’s behavior, nonetheless, amounts to an abuse of process. PQA’s behavior in this proceeding, as inferred by the adverse inference, is entirely distinguishable from conventional settlement negotiations that take place in an adversarial proceeding. Each aspect of PQA’s conduct—discovery misconduct, violation of an express order, abuse of the IPR process, advancing a misleading argument, and a misrepresenting of fact—taken alone, constitutes sanctionable conduct. 37 C.F.R. § 42.12(a)(1)–(3), (6). Taken together, the behavior warrants sanctions. Not only are the sanctions imposed proportional to PQA’s improper conduct here, but they are necessary to deter such conduct by PQA and others in the future. *See* 37 C.F.R. § 42.11(d)(4).

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Given PQA's conduct, I dismiss PQA from this proceeding, subject to the Director, Board, and USPTO retaining jurisdiction over the issuance of sanctions. *See* 37 C.F.R. § 42.12(b)(6), (8).³

I also order PQA to show cause as to why it should not be ordered to pay compensatory damages to VLSI, including attorney fees, to compensate VLSI for its time and effort in this proceeding. I further order PQA to address the appropriate time period for which any fees should be assessed. *See* 37 C.F.R. § 42.12(b)(6) (providing that sanctions include "[a]n order providing for compensatory expenses, including attorney fees"). As set forth below, I order briefing from PQA and VLSI on this issue.

Lastly, as to the underlying proceeding, I also determine whether PQA's Petition, based only on the record before the Board prior to institution, presents a compelling, meritorious challenge. I recognize that the record in this proceeding has progressed through an oral hearing. Nevertheless, assessing compelling merits under the particular circumstances of this case balances competing interests. Specifically, it balances the interests of patent owners in having reliable patent rights with

³ My dismissal of PQA at this stage is not meant to suggest that PQA's actions were more egregious than OpenSky's. Instead, I initially kept OpenSky in the *OpenSky* proceeding, IPR2021-01064, because the issue before me was one of first impression and I needed additional time to determine the appropriate course of action under such extraordinary circumstances. Now having the benefit of considering that case and this one, I conclude that the best course is to dismiss both PQA and OpenSky from each respective proceeding. Accordingly, contemporaneously with this order, I am also issuing an order dismissing OpenSky from the *OpenSky* proceeding.

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the interests of the public in canceling unpatentable patent claims as needed, clearing the path for future innovation, and removing the tax on society caused by the litigation and licensing of clearly invalid patent claims.

I have reviewed the record before the Board prior to institution in this case. For the reasons articulated below, I find that the Petition meets the compelling merits standard as of the time of institution and on the record as it existed at that time. I therefore lift the stay in the underlying proceeding and permit this IPR to continue. I want to ensure any final decision after a trial in this proceeding benefits from our adversarial system, and that, should I take the Final Written Decision in this matter on Director Review, I will benefit from briefing on both sides of any issue I may consider at that time. With this in mind, and because compelling merits at the institution stage exist, I will not dismiss Intel from this proceeding.⁴ *See Penson v. Ohio*, 488 U.S. 75, 84 (1988) (“truth—as well as fairness—is best discovered by powerful statements on both sides of the question” (internal quotation omitted)).

II. BACKGROUND

The dispute over the challenged patent has a long and complex history, starting with VLSI’s complaint against Intel for infringing the ’373 patent, filed in the Waco Division of the United States District Court for the Western District of Texas on April 11, 2019. *VLSI Tech. LLC v. Intel Corp.*, Case No. 1-19-cv-00254-ADA (consolidated as 1-19-cv-00977) (W.D. Tex.).

⁴ Nor did Intel engage in the same discovery malfeasance as PQA.

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A. Intel's Prior Petitions and Litigation

After being sued by VLSI, Intel filed a petition for IPR, challenging claims of the '373 patent. IPR2020-00158, Paper 3. Considering the factors set forth in the Board's precedential decision in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("the *Fintiv* factors"), the Board exercised discretion to deny institution of the proceeding. IPR2020-00158, Paper 16, 14. In particular, the Board highlighted "the advanced stage of the Western District of Texas litigation, a currently scheduled trial date approximately seven months before the would-be deadline for a final written decision, and the overlap between the issues." *Id.* The Board did not address the merits of the Petition, other than determining "that the merits of the Petition do not outweigh the other *Fintiv* factors." *Id.* Notably, the Board issued this decision prior to the issuance of the June 21, 2022, Director's Memorandum ("Memorandum"),⁵ which clarifies that "the PTAB considers the merits of a petitioner's challenge when determining whether to institute a post-grant proceeding in view of parallel district court litigation" and that "compelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel." Memorandum at 4–5.

⁵ Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (USPTO June 21, 2022), *available at* www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf.

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Intel requested POP review of the Board’s decision, which was denied. IPR2020-00158, Papers 18 and 19. The trial in the Western District of Texas was held in February 2021, months after the date that was presented to the Board for the discretionary denial analysis. *See* Ex. 1042; *cf.* Memorandum at 8 (“A court’s scheduled trial date [] is not by itself a good indicator of whether the district court trial will occur before the statutory deadline for a final written decision.”). The trial resulted in a jury verdict finding that Intel literally, but not willfully, infringed claims 1, 5, 6, 9, and 11 of the ’373 patent. Ex. 1031, 2–4. The jury awarded VLSI \$1.5 billion in damages for infringement of the ’373 patent.⁶ *Id.* at 6. Intel did not challenge, and the jury did not consider, the validity of the claims of the ’373 patent. Intel appealed to the Federal Circuit, and that appeal is currently pending as *VLSI Technology LLC v. Intel Corporation*, No. 22-1906 (Fed. Cir. June 15, 2022). The appeal will not resolve the invalidity issues pending before the Board.

⁶ The jury also found that Intel neither literally nor willfully infringed U.S. Patent No. 7,725,759 B2 (“the ’759 patent”), but did infringe claims 14, 17, 18 and 24 of that patent under the doctrine of equivalents. Ex. 1027, 2–4. The jury further found that Intel had not proven by clear and convincing evidence that claims 14, 17, 18, and 24 of the ’759 patent were invalid as anticipated. *Id.* at 5. The jury awarded VLSI \$675 million in damages for Intel’s infringement of the ’759 patent, bringing the total damages award to \$2.175 billion. Ex. 1031, 2–4. The ’759 patent is the subject of IPR2021-01064.

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B. OpenSky's Petition

PQA was not the first entity to file a petition for *inter partes* review of the '373 patent after the jury verdict was announced. One month earlier, OpenSky filed a Petition for *inter partes* review challenging claims 1–3, 5, 6, 9–11, and 13 of the '373 patent in IPR2021-01056. IPR2021-01056, Paper 2. OpenSky copied extensively from Intel's earlier petition. IPR2021-01056, Ex. 2016 (redline comparison of portions of the Petition with portions of Intel's petition in IPR2020-00158). OpenSky further refiled the declaration of Dr. Adit Singh prepared for Intel in IPR2020-00158, without Dr. Singh's knowledge and without engaging him. *See* IPR2021-01056, Paper 2; Exs. 1002, 2037.⁷ OpenSky's failure to engage Dr. Singh proved fatal to its petition. *See* IPR2021-01056, Paper 18, 9.

On December 23, 2021, the Board denied OpenSky's petition challenging the claims of the '373 patent. IPR2021-01056, Paper 18. The Board found "no indication that [OpenSky] ever spoke to Dr. Singh or attempted to retain him for this proceeding or secure his availability for cross examination before filing his declaration." *Id.* at 8. Instead, based on PQA's misrepresentations, the Board found that Dr. Singh had agreed to work exclusively for PQA (as discussed below), and OpenSky had not provided any factual support that Dr. Singh would be released from his

⁷ OpenSky also filed an identical copy of the declaration of Intel's other expert, Dr. Sylvia Hall-Ellis, without change. IPR2021-01056, Paper 17, 9; IPR2021-01056, Ex. 1027. Dr. Hall-Ellis is a librarian who had proffered testimony regarding the prior art status of certain references relied on in Intel's previous petitions. *See* IPR2021-01056, Ex. 1027.

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obligation to PQA so that he could be cross-examined about the content of his declaration. *Id.* at 9. The Board found that OpenSky “brought forth the testimony of an expert that [OpenSky] likely cannot produce for cross-examination and would likely be excluded.” *Id.* Accordingly, the Board concluded that OpenSky’s petition did not warrant institution. *Id.*

C. PQA’s Petition

On July 7, 2021, PQA filed the Petition for *inter partes* review in this proceeding, challenging claims 1–16 of the ’373 patent. Paper 1 (“Petition” or “Pet.”)⁸ Like OpenSky, PQA copied extensively from Intel’s earlier petition. Ex. 2016 (comparison of portions of the petition in this IPR with portions of Intel’s petition in IPR2020-00158). Again like OpenSky, PQA refiled Intel’s supporting declaration of Dr. Singh with minor changes. *See* Exs. 1002, 2022.⁹ Unlike OpenSky, however, PQA contacted Dr. Singh prior to filing its petition and retained Dr. Singh as an expert for this proceeding. *See* Exs. 1034; 2053, 9:5–9. The terms of Dr. Singh’s engagement agreement with PQA required that he “***will not accept new consulting engagements related to the Challenged Patent without prior written consent.***” Ex. 1034, 2 (emphasis in original). That agreement was executed just four days after OpenSky petitioned for review of the ’373

⁸ Unless otherwise indicated, Papers enumerated herein refer to Papers filed in IPR2021-01229 and “Petition” or “Pet.” refer to PQA’s Petition in IPR2021-01229.

⁹ Like OpenSky, PQA filed an identical copy of the declaration of Intel’s other expert, Dr. Hall-Ellis, without change. Paper 7, 6.

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patent, which relied on Dr. Singh’s nearly identical declaration. *Id.* at 3 (signed June 10, 2021).

In its Petition, PQA argued that the Board should not exercise discretion to deny institution under 35 U.S.C. §§ 314(a) or 325(d). Pet. 2–5. In addressing discretionary denial, PQA argued that:

the integrity of the patent system is at issue, as a jury recently found a well-known U.S. company (Intel Corporation) liable for infringement of the ’373 patent and awarded \$1.5 billion to Patent Owner—one of the top 5 largest infringement damage awards. . . . Because no examiner, court, or other tribunal has evaluated the ’373 patent’s validity in view of the grounds presented herein, review is necessary to instill confidence in the integrity of the patent system and to ensure that innovative U.S. companies (and their consumers) are not unfairly taxed by entities asserting invalid patents.

Id. at 2–3. As to OpenSky’s earlier-filed petition, PQA asserted that it “*exclusively* engaged Dr. Singh and Dr. Hall-Ellis to challenge the ’373 patent. Thus, OpenSky cannot present either expert for cross-examination as required.” *Id.* at 4 (emphasis in original). PQA thus argued that the Board should not discretionarily deny its Petition in favor of OpenSky’s defective petition. *See id.* at 5.

VLSI filed a Patent Owner Preliminary Response on October 27, 2021, explaining that this was the third *inter partes* review petition filed against the ’373 patent. Paper 7, 1 (noting discretionary denial of Intel’s petition in IPR2020-00158 and OpenSky’s then-pending petition in IPR2021-01056). VLSI argued that this Petition should be denied, alleging that shortly after the jury verdict, OpenSky and PQA were formed solely to

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challenge the '373 patent with petitions that were largely copies of Intel's already rejected petition. *See id.* at 1–2.¹⁰ VLSI alleged that “[t]hough inspired by OpenSky’s filing but also trailing it, PQA wasted no time in throwing OpenSky under the bus, boasting that it, unlike OpenSky, actually retained the very same experts Intel used and that OpenSky’s declarations were mere hearsay.” *Id.* at 1–2.

In this proceeding, the Board reviewed the evidence and arguments in the Petition, Patent Owner Preliminary Response, Preliminary Reply, and Preliminary Sur-reply, and instituted the requested IPR on January 26, 2022. Institution Decision 24. Specifically, the Board found that the *Fintiv* factors did not weigh in favor of discretionary denial in large part because the district court jury trial did not resolve the unpatentability issues presented in this proceeding. *Id.* at 6–7. Because the Board did not reach the merits of the prior Intel petition, the Board disagreed with VLSI’s arguments that institution should be denied because the Petition presents the same challenges as the prior Intel petition. *Id.* at 7–13 (relying on factors set forth in *General Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (Sept. 6, 2017) (precedential) (“the *General Plastic*” factors)); *see Code200, UAB v. Bright Data Ltd.*, IPR2022-00861, Paper 18, 5 (Aug. 23, 2022) (precedential) (“Where the first-filed petition under factor 1 was discretionarily denied or otherwise was not evaluated on the

¹⁰ Such practice has become known as “copycat” petition practice and, to date, has not been held to be improper. *See, e.g., Best Med. Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1350 (Fed. Cir. 2022) (referring to “copycat” petition accompanied by motion for joinder).

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merits, factors 1–3 only weigh in favor of discretionary denial when there are ‘road-mapping’ concerns under factor 3 or other concerns under factor 2. . . . ‘[R]oad-mapping’ concerns are minimized when, as in this case, a petitioner files a later petition that raises unpatentability challenges substantially overlapping with those in the previously-filed petition and the later petition is not refined based on lessons learned from later developments.”). The Board also was not persuaded that “prevailing in litigation against one party should insulate a patent owner from challenge by a different party based on grounds that were not resolved in the litigation.” *Id.* at 7.

On February 8, 2022, VLSI sought to challenge the institution decision, filing requests for rehearing and for POP review. In the rehearing request, VLSI argued that “[t]he Board should not permit entities formed after the verdict and facing no infringement threat to treat these proceedings as leverage to extract ransom payments in exchange for withdrawing abusive attacks.” Req. Reh’g 1, 6–8. VLSI argued that such a proceeding advances no valid public interest and “fail[s] to weigh the overarching interests of fairness to the parties and the integrity of the patent system.” *Id.* at 1–2, 9–10.

D. Intel’s Motion for Joinder

Within a month of the Board instituting IPR in this proceeding, Intel timely filed its own Petition for IPR with a Motion for Joinder to this proceeding. Paper 30; IPR2022-00479, Papers 3 and 4. The Board joined Intel to this proceeding on June 6, 2022, determining that Intel’s Petition warranted institution and declining to discretionarily deny institution under

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35 U.S.C. §§ 314(a) and 325(d). Paper 30. In considering discretionary denial, the Board determined that:

[a]lthough Petitioner has directed this Petition to the same claims and relies on the same art as in its first petition, that the Board did not substantively address the merits of the prior Intel petitions, in our view, weighs against discretionary denial here. The district-court trial that led to the denial of its initial petitions is over and did not resolve the challenges presented here. Allowing Petitioner the opportunity to pursue a decision on the merits from the Board at this time—by joining PQA’s substantially identical petition—best balances the desires to improve patent quality and patent-system efficiency against the potential for abuse of the review process by repeated attacks on patents.

Id. at 9–10 (citing *General Plastic*, Paper 19 at 16–17). The Board correctly identified that the statute expressly provides an exception to the one-year time bar (set forth in 35 U.S.C. § 315(b)) for a request for joinder. *Id.* at 7, n.7, 18 (citing 35 U.S.C. § 315(b)) (“The time limitation set forth . . . shall not apply to a request for joinder under subsection (c)”). VLSI requested POP review of the Board’s decision to join Intel to the proceeding, and that request was denied. Papers 34 and 40.

On August 30, 2022, the Board authorized VLSI to file a Motion to Terminate Intel from the proceeding, setting forth VLSI’s arguments on res judicata. Paper 70, 2. The Board authorized Intel to file an opposition to the motion. *Id.* VLSI filed the Motion to Terminate on September 29, 2022. Paper 91. Intel filed its opposition on October 27, 2022. Paper 97. The Motion is pending.

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E. Director Review

As noted above, I ordered a *sua sponte* Director review of the Board’s institution decision in this proceeding on June 7, 2022. Paper 31.

Concurrent with my Order, the POP dismissed the rehearing and POP review requests. Paper 32. Because I did not yet have all the facts before me, I did not stay the underlying proceeding.

On July 7, 2022, I issued a Scheduling Order for the Director review. Paper 35. The Scheduling Order defined the scope of my review, as I determined that “this proceeding presents issues of first impression” and “involves issues of particular importance to the Office, the United States innovation economy, and the patent community.” *Id.* at 7–8. In particular, I identified the following issues as relevant:

1. What actions the Director, and by delegation the Board, should take when faced with evidence of an abuse of process or conduct that otherwise thwarts, as opposed to advances, the goals of the Office and/or the AIA; and
2. How the Director, and by delegation the Board, should assess conduct to determine if it constitutes an abuse of process or if it thwarts, as opposed to advances, the goals of the Office and/or the AIA, and what conduct should be considered as such.

Id. I directed the parties to address these questions and to support their answers “in their briefing, including through new arguments and non-declaratory evidence.” *Id.* at 8. I also invited amici curiae briefing. *Id.*

To enable me to address those questions in the context of this review, my Scheduling Order also instructed the parties to answer interrogatories and exchange certain categories of information as Mandated Discovery. *Id.*

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at 8–11; 35 U.S.C. § 316(a)(5) (“The Director shall prescribe regulations setting forth standards and procedures for discovery of relevant evidence . . . otherwise necessary in the interest of justice.”). My interrogatories ordered the parties to address specific questions related to the “issues of particular importance” in this review. Paper 35, 8–9.

I ordered the Mandated Discovery “to allow all parties to answer the questions” (interrogatories) I set forth, and to give each party an opportunity to produce evidence supporting its position. *Id.* at 9–10. The Mandated Discovery included categories of documents relating to the formation and business of PQA, documents and communications “relating to the filing, settlement, or potential termination of this proceeding, or experts in this proceeding, not already of record in the proceeding,” and “communications with any named party relating to the filing, settlement, or potential termination of this proceeding.” *Id.* My Scheduling Order warned “that sanctions may be considered for any misrepresentation, exaggeration, or over-statement as to the facts or law made in the parties’ briefing” (*id.* at 9), and that “[a]ny attempt to withhold evidence based on a narrow interpretation of the [discovery] requests will be reviewed in conjunction with any other subject conduct and may, alone or in combination with other conduct, be sanctionable.” *Id.* at 10.

On July 20, 2022, PQA submitted objections to the Mandated Discovery. Ex. 3004; *see also* Ex. 1039 (Petitioner’s objections to Director’s Orders, filed August 4, 2022). I address PQA’s specific objections below. PQA also stated that it “is willing to produce responsive third-party communications in its possession, custody, and control between

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PQA and OpenSky, VLSI, Intel, governmental entities, and Dr. Singh . . . if the Office provides written confirmation the Office will not consider PQA’s act of producing the Third-Party Documents as waiver of PQA’s objections to the Order.” Ex. 3004 (emphasis omitted). PQA’s email concluded with a listing of its preliminary objections regarding the interrogatories and discovery required in the Scheduling Order. *Id.*

On July 21, 2022, I extended the deadlines for the parties to exchange information and accordingly extended the briefing deadlines: as extended, parties’ initial briefs and briefs of amici curiae were due on August 18, 2022,¹¹ and the parties’ responsive briefs were due on September 1, 2022. Paper 37, 4. In the Order granting a two-week extension, I reminded the parties that “as set forth in the Scheduling Order, a party may lodge legitimate, lawful grounds for withholding documents, and shall maintain a privilege log of documents withheld.” *Id.*

¹¹ Fourteen amici curiae briefs have been entered into the record of this proceeding, from the following: American Intellectual Property Law Association (Paper 41) (“AIPLA”); Association of Amicus Counsel (Paper 57); Naples Roundtable (Paper 56) (“Naples”); Ramzi Khalil Maalouf (Paper 55) (“Maalouf”); Engine Advocacy et al. (Paper 54) (“Engine”); High Tech Inventors Alliance (Paper 53) (“HTIA”); Robert Armitage (Paper 42); Computer and Communications Industry Association (Paper 58) (“CCIA”); BSA | The Software Alliance (Paper 59) (“BSA”); The Alliance of U.S. Startups et al. (Paper 60) (“USIJ”); Hon. Paul R. Michel (Paper 61); Unified Patents et al. (Paper 62) (“Unified”); Public Interest Patent Law Institute (Paper 63) (“PIPLI”); and Centripetal Networks, Inc. (Paper 64) (“Centripetal”).

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On July 29, 2022, I issued a further Order addressing the scope of Mandated Discovery. Paper 39. I reminded the parties that “they are required to comply with the full scope of the Scheduling Order, including its Mandated Discovery provisions now due to be exchanged by August 4, 2022,” and “failure to comply with my Order may be sanctionable.” *Id.* at 3. I explained that potential sanctions may include, for example, “[a]n order holding facts to have been established in the proceeding.” *Id.* at 3–4 (quoting 37 C.F.R. § 42.12). The parties were further “reminded that legitimate, lawful grounds for withholding documents may be lodged and, if so, the party shall maintain a privilege log of documents withheld. No responsive document may be withheld without being included in such a privilege log.” *Id.* (internal citations omitted). Thus, I provided actual notice to the parties of specific sanctionable conduct and corresponding potential sanctions for such conduct, in addition to the constructive notice provided by the Office’s published regulations.

As discussed in detail below, PQA did not comply with the Mandated Discovery as ordered. *See* Paper 68, 15–20.¹² It produced a minimal number of documents to the other parties and provided wholly inadequate answers to my interrogatories. PQA produced a privilege log with 22 entries including work product relating to communications between PQA and Dr. Singh. Paper 43, 3; Ex. 1039, 1. In contrast, both VLSI and Intel produced responsive documents and detailed privilege logs, as ordered.

¹² Paper 68 is the nonconfidential version of VLSI’s Initial Brief in response to the Director review order; Paper 50 is the confidential version.

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III. FAILURE TO COMPLY

As explained above, I initiated Director review to answer questions of first impression related to the IPR process. Paper 35, 7. Before proceeding to those questions, however, I must address PQA's deficient responses to the discovery required in my Scheduling Order.

A. PQA's Objections to Mandated Discovery

The deadline for exchange of documents and communications contemplated by my Mandated Discovery order was August 4, 2022. Paper 34, 4. The deadline for the parties to submit briefs addressing the Director's interrogatories with supporting documentary evidence was August 18, 2022. *Id.*; Paper 35, 8–10. The parties were repeatedly warned that no documents may be withheld without being included in a privilege log, and that any attempt to withhold evidence may be sanctionable. Paper 35, 10; Paper 39, 4.

On July 20, 2022, PQA sent an email with objections to my Mandated Discovery. Ex. 3004. I noted PQA's objections and reminded the parties that "they are required to comply with the full scope of the Scheduling Order, including its Mandated Discovery provisions." Paper 39, 3. PQA filed more expansive objections on August 4, 2022. Ex. 1039. For the reasons set forth below, I find their objections have no merit.

First, PQA contends that "this Director Review exceeds the Director's authority and violates PQA's due process rights." Ex. 1039, 3. Specifically, PQA argues that the Director does not have the authority to review a panel's institution decision because the Supreme Court's decision in *United States v.*

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Arthrex modified 35 U.S.C. § 6(c) only with respect to final Board decisions. *Id.* (citing 141 S. Ct. 1970, 1987 (2021)). PQA’s interpretation does not comport with the Supreme Court’s view of the Director’s authority. For example, the Court held that “[t]he Constitution [] forbids the enforcement of statutory restrictions on the Director that insulate the decisions of APJs from his [or her] direction and supervision. To be clear, the Director need not review every decision of the PTAB. What matters is that the Director have the discretion to review decisions rendered by APJs.” 141 S. Ct. at 1988; *see also id.* at 1987 (“[T]his suit concerns only the Director’s ability to supervise APJs in adjudicating petitions for inter partes review.”). The Supreme Court thus sets forth broad discretionary power for the Director to elect to review APJ decisions, which also includes decisions on institution. Moreover, by statute, the Director determines whether to institute an IPR, and has discretion whether to do so. 35 U.S.C. § 314. Although the Director has delegated decisions on institution to the Board (37 C.F.R. § 42.4), the Director retains the power to review such decisions. Nothing in *Arthrex* or the AIA suggests otherwise. *See, e.g.*, 141 S. Ct. at 1989 (stating that “[b]ecause Congress has vested the Director with the ‘power and duties’ of the PTO, § 3(a)(1), the Director has the authority to provide for a means of reviewing PTAB decisions. *See also* §§ 3(a)(2)(A), 316(a)(4).”); *Medtronic, Inc. v. Robert Bosch Healthcare Sys., Inc.*, 839 F.3d 1382, 1385 (Fed. Cir. 2016) (“administrative agencies possess inherent authority to reconsider their decisions, subject to certain limitations, regardless of whether they possess explicit statutory authority to do so.”).

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Second, PQA contends that the Director's orders are *ultra vires* or otherwise prohibited because they subject PQA to undisclosed substantive and procedural standards and procedures under the threat of sanctions, and PQA has done nothing to warrant such action. Ex. 1039, 7–11 (citing Paper 31; Paper 35; Paper 39). The need for discovery into a potential abuse of process is based on the particular posture of this proceeding, where Patent Owner has argued that PQA was formed and filed its Petition only after a significant jury verdict for infringement. See Paper 35, 4, 5, 9. As the record demonstrates, PQA represented that it had “*exclusively* engaged” Dr. Singh, which was the basis for the Board's decision to deny institution in IPR2021-01056 involving Petitioner OpenSky. See Pet. 4 (emphasis in brief), IPR2021-01056 Paper 18, 5–9. Not only has PQA subsequently qualified this representation to state that Dr. Singh could be engaged by another entity with PQA's written consent,¹³ the very fact that PQA entered into that arrangement shows its intent to ensure that PQA, not OpenSky, would benefit monetarily from any arrangement with VLSI or Intel. My discovery orders provided PQA an opportunity to demonstrate that they had no intention of engaging in an abuse of process. PQA chose not to provide discovery that would allow me to resolve that question. My discovery orders also provided clear notice of the potential consequences for failing to

¹³ See Paper 67, 18. The underlying engagement agreement has been of record since the filing of Petitioner's Reply to the Preliminary Response. See Ex. 1034, 2 (engagement agreement).

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comply. Thus, the posture of this case warrants the sanctions stated in my orders.

Third, PQA contends that the Order¹⁴ exceeds the Office’s statutory and regulatory authority. Ex. 1039, 11. I addressed PQA’s arguments with respect to 35 U.S.C. § 6(c) above. PQA further contends that the Order exceeds the discovery permitted under 35 U.S.C. § 316(a)(5) and 37 C.F.R. § 42.51. *See id.* at 11. PQA’s argument on this point is not persuasive. 35 U.S.C. § 316(a)(5) provides that discovery may be sought where “necessary in the interest of justice,” which is at the heart of the inquiry as to whether PQA has abused the IPR process. And although 37 C.F.R. § 42.51 explicitly enumerates certain default categories of “limited” discovery, it also makes clear that “the Board may otherwise order” additional discovery when such discovery is “in the interest of justice,” as it is here. Furthermore, in general, it is within my purview to “determine a proper course of conduct in a proceeding for any situation not specifically covered by [the other regulations]” and to “enter non-final orders,” such as the Scheduling Order, “to administer the proceeding.” 37 C.F.R. § 42.5(a).

Fourth, PQA argues that the Scheduling Order is inconsistent with Board procedures governing non-routine discovery. Ex. 1039, 11–15. For example, PQA contends that there is no evidence “tending to show beyond speculation that in fact something useful will be uncovered.” *Id.* at 12 (quoting *Garmin Int’l, Inc. v. Cuozzo Speed Techs. LLC*, IPR2012-00001 (PTAB Mar. 5, 2013) (Paper 26) (precedential)). Again, while Board

¹⁴ PQA appears to be referring to Paper 35. *See* Ex. 1039, 1.

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procedures governing party conduct do not formally apply to my inquiry into process abuses, my Scheduling Order makes clear the basis for the ordered discovery here. The Scheduling Order explains that the discovery would permit the parties to answer the questions I identified as germane to my inquiry into the circumstances surrounding PQA’s formation and conduct—information that is uniquely in the parties’ (and specifically PQA’s) possession. Paper 35, 7–10; 37 C.F.R. § 42.11(a) (“Parties and individuals involved in the proceeding have a duty of candor and good faith to the Office during the course of a proceeding.”).

PQA’s argument that the Order is not “easily understandable” is also not persuasive. Ex. 1039, 13. No other party indicated that they had any issue understanding the Order, nor did they have issues complying. PQA’s argument that the discovery is overly burdensome (Ex. 1039, 13–14) fares no better—PQA could have sought to file a motion to revise the standing protective order “[f]orbidding . . . or [s]pecifying terms . . . for the disclosure or discovery” to alleviate that burden (37 C.F.R. § 42.54(a)(1)), or at least have requested a second extension if it could demonstrate an actual burden, but instead chose noncompliance.

PQA briefly argues that the Order violates its members’ constitutional rights by compelling PQA members to disclose their identities without evidence of wrongdoing or inaccurate mandatory notices. Ex. 1039, 15. PQA does not explain how complying with a discovery order results in a constitutional violation. Further, by choosing to file this IPR, PQA availed itself of my and the Board’s jurisdiction and opened itself to questions regarding its members and purpose, among others.

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PQA ends its objections with a series of similarly unpersuasive arguments. PQA suggests that the Order is inconsistent with the purposes of the AIA. Ex. 1039, 5–6. PQA also asserts that the Order contravenes congressional intent for “discovery in *inter partes* review proceedings to be limited in [both] scope and expense.” *Id.* at 15. However, PQA fails to acknowledge that, along with the goal of improving quality, “Congress recognized the importance of protecting patent owners from patent challengers who could use the new administrative review procedures as ‘tools for harassment.’” *WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1317 (Fed. Cir. 2018) (citing H. Rep. No. 112–98, at 48 (2011)). The Order sets forth discovery for this very purpose, to identify and address potential harassment in this proceeding.

PQA’s argument that the Order is inconsistent with the guidelines for Director review rests on its contention that “the Order does not identify any issue of first impression.” Ex. 1039, 16. PQA provides no citation for the claim that Director review is limited to issues of first impression. In any event, my Order indicated that the issues here are ones of first impression. *Id.* Finally, PQA contends that the Order would require it to waive privilege objections by disclosing privileged documents to a federal agency (*id.* at 17) (citing *In re Qwest Commc’ns Int’l Inc.*, 450 F.3d 1179, 1186 (10th Cir. 2006)), but avoiding such waiver while still proving sufficient indicia to test that privilege claim is the point of a fulsome privilege log, which PQA failed to submit.

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B. PQA's Failure to Comply with Mandatory Discovery and Interrogatories

PQA failed to comply with the discovery requirements set forth in the Scheduling Order by: (1) refusing to provide internal documents to the other parties in the proceeding, or instead, a privilege log listing privileged documents withheld for in camera review;¹⁵ and (2) failing to respond in good faith to the interrogatories, with adequate evidence. Paper 35, 8–10. Each of these failures to comply is independently sanctionable. *Id.* at 9–10.

1. PQA refused to produce confidential documents under seal, or a privilege log of internal documents that were not produced

As explained above, the deadline for the exchange of documents and communications was August 4, 2022. On August 11, 2022, VLSI requested in camera review, as to the production made by PQA. Paper 43. VLSI asserts that it:

cannot identify with specificity documents for in camera review as to the responsive documents . . . because PQA has (i) failed to produce internal documents; and (ii) failed to provide a meaningful privilege log, instead providing only a very limited work product redaction log in this matter, each in violation of the Director's Orders (*see* Papers 35, 37 and 39).

Id. at 1. VLSI asserts that “PQA produced 111 documents and a ‘privilege log’ consisting of only 22 entries. The first 21 entries correspond to redacted email chains between PQA and its technical expert, Dr. Adit Singh, and identify the basis for those redactions as ‘work product protection,’ but

¹⁵ PQA did log work product relating to its communications between PQA and Dr. Singh. Ex. 1039, 1.

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not attorney-client privilege.” *Id.* at 3 (internal footnote omitted). VLSI contends that “PQA’s August 4, 2022 log identifies no documents withheld for attorney-client privilege,” and instead, PQA acknowledges that it has not logged any communications between PQA and its attorneys. *Id.* at 4. VLSI argues that “despite the fact that the Director has expressly found that PQA’s objections are not a basis upon which to withhold documents or to not log, PQA has chosen to stand on its objections and withheld documents and a privilege log in violation of the Director’s express Orders.” *Id.* at 5–6 (citing Ex. 1039).

On August 18, 2022, PQA filed its initial brief in response to the Director review order. Paper 67.¹⁶

In its responsive brief, filed September 1, 2022, PQA asserts that it produced responsive documents, and that it has not willfully violated any order. Paper 77, 15–16. Instead, PQA asserts that VLSI violated my Orders because “VLSI did not produce or log any (i) internal communications of VLSI, Fortress Investment Group, and/or other VLSI affiliates, or (ii) communications solely among VLSI’s outside or in-house counsel.” *Id.* at 16. PQA further asserts that “VLSI’s allegations of non-compliance during the Director review are actions that occurred well after institution and thus do not impact the Institution Decision in this proceeding.” *Id.* at 17 (emphasis omitted). None of these arguments justify PQA’s failure to comply.

¹⁶ Paper 67 is the nonconfidential version of PQA’s Initial Brief in response to the Director review order; Paper 51 is the confidential version.

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PQA appears to admit that it did not produce or log any internal communications when it asserts that PQA and VLSI did the exact same thing. Paper 71, 15–16 (“VLSI did the *exact* same thing. VLSI only logged communications between VLSI in-house attorneys and outside counsel. VLSI did not produce or log any . . . internal communications . . .”) (emphasis omitted)). Having overruled PQA’s objections to discovery, I find that PQA did not comply with the Mandated Discovery, as required by the Scheduling Order. *See* Paper 35, 9–10.¹⁷

2. *PQA’s responses to the interrogatories are inadequate and lack evidentiary support*

In addition to its express refusal to comply with the Mandated Discovery, PQA failed to respond adequately to the interrogatories set forth in the Scheduling Order, which required the parties to respond with citation to supporting documentary evidence. Paper 35, 8. PQA’s initial brief purports to address the interrogatories listed in the Scheduling Order but fails to do so adequately. Paper 67, 8–18. For instance, PQA refers to a declaration of Joseph A. Uradnik, Ex. 1032, which was already of record. *See id.* As a result, many of the interrogatories remain unanswered or unsubstantiated by PQA.

For example, interrogatory (a) asked, among other things, for what purpose PQA was formed, what its business is, and who its members are? Paper 35, 8. To answer these questions, the Scheduling Order required PQA to provide the other parties with materials including communications related

¹⁷ I do not rule on the adequacy of VLSI’s discovery compliance at this time.

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to the formation of PQA and documents related to its business plan. *Id.* at 9. PQA responds by stating that the “initial authorized business of PQA is to challenge patent(s) to ensure patent quality.” Paper 67, 8. PQA refuses to disclose its members by stating that “PQA’s members are United States citizens, none of whom are employed by, work for, or are affiliated with Intel, OpenSky, or VLSI.” *Id.* (citing Ex. 1032 ¶ 6). PQA states that “[n]o other persons or entities beyond PQA’s members have an interest in PQA, its future revenues, profits, or obligations, or any of its activities including this proceeding.” *Id.* at 8–9 (citing Ex. 1032 ¶¶ 4, 5, 7–11).

This answer is not responsive. As an initial matter, this answer only makes an assertion as to who its members are not; it does not identify the members of PQA. *See* Paper 35, 8 (“Who are members of PQA?”). In addition, PQA does not answer the interrogatory seeking the purpose for which PQA was formed, nor does PQA provide any required supporting evidence that would allow me, VLSI, or Intel to verify that PQA’s business interest is limited to ensuring patent quality. *See* Paper 46, 10–11; Paper 68, 2–5.

Interrogatory (b) asked, “[o]ther than communications already in the record, what communications have taken place between PQA and each of the other parties?” Paper 35, 8. To answer this question, the Scheduling Order required PQA to provide the other parties with “all documents and communications relating to the filing, settlement, or potential termination of this proceeding, or experts in this proceeding, not already of record.” *Id.* at 9.

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PQA reports that after it filed its Petition, “VLSI contacted PQA to discuss settlement,” and PQA declined. Paper 67, 6. PQA also explains that VLSI contacted PQA again, after the Board instituted this proceeding. *Id.* at 7. PQA states that [REDACTED] [REDACTED]. Paper 51, 9. PQA further reports that “[t]he parties did not agree to settlement before institution, and they have not discussed settlement since then.” *Id.* at 7; *see also id.* at 9 (responding to the interrogatory by, in part, referring to these communications).

PQA also states that since Intel’s joinder as a petitioner on June 6, 2022, PQA and Intel have had a common interest and have cooperated in the prosecution of the merits of the unpatentability of the ’373 patent, which is not part of the Director review, and that PQA has no other formal or informal relationship with Intel. *Id.* at 10.

PQA thus does not explain sufficiently the nature of its communications with VLSI in PQA’s opening brief.¹⁸ In its responsive brief, PQA goes into some further detail. Paper 77, 4–7; *see also* Paper 71 (confidential version), 4–7 (citing Exs. 2065 and [REDACTED]). In particular, [REDACTED] [REDACTED]

¹⁸ According to VLSI, in the privilege log that PQA submitted to VLSI, “[t]he last entry lists several communications that appear to correspond to communications between PQA and VLSI that the log states are withheld based on only PQA’s “objections,” not privilege or work product protection, and that PQA’s email to the Board sent along with the August 4 production states “are documents VLSI has in its own possession.” Paper 43, 3 n.1 (citing Ex. 3015).

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[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

I find PQA's responses deficient and misleading. For example, [REDACTED]
[REDACTED] PQA's
briefing also was not fully responsive to the interrogatory question about its
dealings with VLSI, as VLSI correctly points out.¹⁹ Paper 76, 1, 7–8 (citing
Exs. 2064–2078). [REDACTED]

[REDACTED]

[REDACTED]. See Exs. 2075, 2076 ([REDACTED])

[REDACTED] Further, PQA did not
mention that PQA implied that [REDACTED]

¹⁹ VLSI alleges that PQA failed to produce communications between PQA
and Intel that are logged in a privilege log by Intel and that are not logged by
PQA. See Paper 76, 1. [REDACTED]

[REDACTED]
[REDACTED] Ex. 1518.

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[REDACTED] See Ex. 2069 ([REDACTED])
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Interrogatory (c) asked, “[c]ould PQA be subject to claims of infringement of the ’373 patent,” and “[d]oes PQA have a policy reason for filing the Petition that benefits the public at large beside any reasons articulated in the already-filed papers?” Paper 35, 8. PQA resists answering this question by arguing that an invalid patent cannot be infringed, that it does not wish to admit infringement, that infringement and validity are separate questions, and that the Intel products found to infringe are used by millions of people and businesses in the United States. Paper 67, 10–12. PQA argues that it has served a public interest by highlighting what it considers to be a problem with the Office’s *Fintiv* practice, that it has filed a meritorious petition, and that “the public interest in the validity of a patent is arguably at its highest when a U.S. company has been found to infringe and is liable for one of the biggest patent verdicts in history.” *Id.* at 12–14. PQA’s briefing was thus not responsive to the underlying question of infringement, i.e., the extent to which PQA participates in the market for products covered by the patents in question.

Interrogatory (d) asked, “[d]oes the evidence in this proceeding demonstrate an abuse of process . . . [and] if so, which evidence and how should that evidence be weighted and addressed?” Paper 35, 8–9. To

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answer this question, the Scheduling Order required PQA to provide the other parties with “all communications with any named party relating to the filing, settlement, or potential termination of this proceeding.” *Id.* at 9.

PQA responds that there is no abuse of process, but fails to provide supporting evidence. Paper 67, 14. Moreover, as discussed above, PQA intentionally omitted information [REDACTED]

[REDACTED] Apart from its own actions, PQA argues that the Board and Director confirmed the merits of PQA’s petition and that a meritorious petition should never be considered an abuse of process or contrary to the goals of the Office. *Id.* at 14 and n.2. PQA also argues that this proceeding will be the first adjudication—by any tribunal—of the validity of the ’373 patent, that PQA and Intel confirmed through document productions there is no hidden connection between Intel and PQA, and that PQA has vigorously prosecuted this IPR and [REDACTED]

[REDACTED] which is consistent with public policy favoring settlement negotiations. *Id.* at 14–15 (citing, e.g., Consolidated Trial Practice Guide (Nov. 2019) at 86). PQA’s briefing was thus non-responsive to this interrogatory question.

Interrogatory (e) asked, “[w]hat is the basis for concluding that there are no other real parties in interest, beyond PQA,” and “[a]re there additional people or entities that should be considered as potential real parties in interest?” Paper 35, 8–9. To answer this question, the Scheduling Order required PQA to provide the other parties with “all documents relating to PQA’s business plan including its funding, its potential revenue, and the future allocation of any of its profits.” *Id.* at 9. PQA’s response to this

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interrogatory essentially repeats its response to interrogatory (a) and relies on the Declaration of Joseph A. Uradnik (Ex. 1032). *See* Paper 67, 15–17. For reasons similar to those I gave regarding interrogatory (a), PQA’s answer is not responsive to interrogatory (e) and does not provide sufficient evidence to allow me to evaluate PQA’s answer.

Interrogatory (f) asked, “[d]id PQA ever condition any action relating to this proceeding . . . on payment or other consideration by Patent Owner or anyone else?” Paper 35, 9. [REDACTED]

[REDACTED] PQA essentially argues that it has never suggested delaying, losing, or not participating in the proceeding and never attempted to influence an expert not to participate in the proceeding. *See* Paper 67, 18. PQA states that while PQA’s engagement with Dr. Singh is “exclusive,” that provision may be waived on request. *Id.* (citing Ex. 1034). PQA states that since its engagement of Dr. Singh, no party (including OpenSky) has ever sought to engage him in connection with the ’373 patent, and thus PQA has never declined any such request. *Id.*

PQA’s answer in its initial brief (Paper 67) is misleading and not fully responsive to interrogatory (f). In particular, VLSI provides evidence that

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

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[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Moreover, one aspect of [REDACTED]

[REDACTED]
[REDACTED]. Paper 71, 4–5.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Paper 71, 9 (citing Ex.

2065, 1). It is worth noting, however, that PQA only provided this justification after VLSI exposed the parties' negotiation in VLSI's interrogatory answer. PQA could have provided this information in the first instance (i.e., in its initial brief) in response to the interrogatory on whether PQA ever conditioned any action relating to this proceeding on payment or other consideration by Patent Owner or anyone else. *See* 37 C.F.R. § 42.11(a) ("Parties and individuals involved in the proceeding have a duty of candor and good faith to the Office during the course of a proceeding."). I find that PQA's failure to mention anything of this nature in its initial brief represents an attempt to subvert answering interrogatory (f).

C. Sanctions for PQA's Failure to Comply

PQA has identified no authority that would allow it to ignore the Mandated Discovery and interrogatories in my Order. Therefore, I determine that PQA has failed to comply. I further determine that it is

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appropriate to sanction PQA for its discovery misconduct. *See* 37 C.F.R. § 42.12(b) (non-exhaustive list of sanctions).

The Director²⁰ has the authority to impose sanctions against a party for misconduct. 35 U.S.C. § 316(a); 37 C.F.R. § 42.12(a); *see Apple Inc. v. Voip-Pal.com, Inc.*, 976 F.3d 1316, 1323 (Fed. Cir. 2020); *see also* APLA, 9; BAS, 6–7; Unified, 3–5, 12–17; Naples, 6. Although 37 C.F.R. § 42.12(a) does not require the Board to impose sanctions, where, as here, a party has clearly violated an order after being provided with clear notice of possible sanctions for failing to comply with that order, the integrity of practice before the Board is best served by imposing sanctions commensurate with the sanctionable misconduct to not only punish the offending party, but also to deter future misconduct. *See* 37 C.F.R. § 42.12(a) (authorizing sanctions for “misconduct”); *see also id.* at § 42.11(d)(4) (permitting sanctions to “deter repetition of the conduct or comparable conduct by others similarly situated”).

Whether sanctions are appropriate is a highly fact-specific question, and the relevant considerations will vary from case to case. Prior sanction contexts have considered:

- (1) whether the party has performed conduct warranting sanctions;
- (2) whether that conduct has caused harm (to, for example, another party, the proceedings, or the USPTO); and

²⁰ The Director of the USPTO, the Deputy Director of the USPTO, the Commissioner for Patents, the Commissioner for Trademarks, and the Administrative Patent Judges shall constitute the PTAB. 35 U.S.C. § 6(a). Accordingly, the Director may levy sanctions as a member of the Board.

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(3) whether the potential sanctions are proportionate to the harm. *See, e.g., R.J. Reynolds Vapor Co. v. Fontem Holdings I B.V.*, IPR2017-01318, Paper 16 at 5, 8 (PTAB Aug. 6, 2018). The Director may impose sanctions, for example, for “[f]ailure to comply with an applicable rule or order in the proceeding”; “[a]dvancing a misleading or frivolous argument or request for relief”; “[m]isrepresentation of a fact”; “[a]buse of discovery”; “abuse of process”; or “[a]ny other improper use of the proceeding, including actions that harass or cause unnecessary delay or an unnecessary increase in the cost of the proceeding.” 37 C.F.R. §§ 42.12(a)(1), (2), (3), (5), (6), (7). Sanctions may include, for example, “[a]n order holding facts to have been established in the proceeding”; “an order precluding a party from filing a paper”; and “an order providing for compensatory expenses, including attorney fees.” *Id.* §§ 42.12(b)(1), (2), (6). Additionally, the Director may issue sanctions not explicitly provided in 37 C.F.R. § 42.12(b). *See Voip-Pal.com*, 976 F.3d at 1323–24. Any sanction must be commensurate with the harm caused. *See R.J. Reynolds*, IPR2017-01318, Paper 16 at 5.

As a result of PQA’s failure to comply with my ordered Mandated Discovery provisions, I, VLSI, and Intel do not have a complete record to fully examine PQA’s assertion that it has not committed an abuse of the IPR process. Indeed, the confidential material in this Order makes clear that PQA has made misleading statements and affirmatively attempted to withhold facts that, taken alone or with other facts, might establish that PQA abused the IPR process.

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PQA should not be allowed to profit from its discovery misconduct. Accordingly, I determine that the proper sanction is to hold disputed facts as established against PQA. 37 C.F.R. § 42.12(b)(1); Paper 39, 3, 4 (warning parties that “failure to comply with my Order may be sanctionable,” and specifically warning that “without limitation, sanctions may include ‘[a]n order holding facts to have been established in the proceeding’” under 37 C.F.R. § 42.12(b)(1)). The Federal Circuit has approved this remedy of adverse inference in the context of district court litigation, stating that “when ‘the alleged breach of a discovery obligation is the non-production of evidence, a district court has broad discretion in fashioning an appropriate sanction, including the discretion to . . . proceed with a trial and give an adverse inference instruction.’” *Regeneron Pharms., Inc. v. Merus N.V.*, 864 F.3d 1343, 1363 (Fed. Cir. 2017) (quoting *Residential Funding Corp. v. DeGeorge Fin. Corp.*, 306 F.3d 99, 107 (2d Cir. 2002)).

In view of the record as discussed above, including PQA’s response to interrogatories (a)–(f), I find that PQA was not only non-responsive to my interrogatories but that PQA was evasive in its responses and engaged in troublesome conduct. I further apply adverse inferences in my decisions on abuse of process below.

IV. ABUSE OF PROCESS AND OTHER SANCTIONABLE CONDUCT

I initiated Director review in this proceeding to examine and address VLSI’s allegations of abuse of process by PQA. *See* Paper 31; Paper 35, 8. Under existing Office regulations, an abuse of process is sanctionable (i.e., it

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is “conduct that warrants sanctions”). 37 C.F.R. § 42.12(a)(6). Abuse of process is a fact-based inquiry, and existing regulations do not attempt to specify what acts constitute an abuse of process. Accordingly, I consider PQA’s conduct to determine whether it demonstrates an abuse of process or conduct that otherwise thwarts, as opposed to advances, the goals of the Office and/or the AIA.

A. Background Principles

Congress created the AIA to support the “important congressional objective” of “giving the Patent Office significant power to revisit and revise earlier patent grants,” among other objectives. *Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 272 (2016). Congress did not implement a standing requirement for petitioners; any party (other than the patentee) may seek such review. 35 U.S.C. § 311(a). AIA post-grant proceedings, and more specifically, the IPR proceedings at issue here, do not exist in isolation but are part of a larger patent and innovation ecosystem. Congress intended AIA proceedings to be a less-expensive alternative to district court litigation to resolve certain patentability issues. AIA proceedings were not, however, intended to replace patent litigation, which remains a vital forum for determining patent validity. Nor were they intended to be tools of patent owner harassment. Congress expressed the intent of the AIA in the statute when it directed the Director, when prescribing regulations, to “consider . . . the economy, the integrity of the patent system, the efficient administration of the Office, and the ability of the Office to timely complete proceedings.” 35 U.S.C. § 316(b). I consider this mandate not just when promulgating regulations, but in administering the AIA through guidance and decision-

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making. Abuse of AIA proceedings undermines these important objectives, and the Office will not tolerate it.

PQA points to an argument from an amicus that abuse of process cannot arise from the filing of a petition and can only refer to conduct that arises after litigation, relying in part on the second Restatement of Torts. *See* Paper 77, 23 (citing Paper 55, 5; Restatement (Second) Torts § 682). I disagree. The Restatement indicates that even a properly initiated proceeding may be abused, and further indicates that it is an abuse of process to initiate a proceeding for a purpose other than that for which it was intended. *Id.*,²¹ *see also* Fed. R. Civ. P. 11. Further, as discussed below, the sanctions I impose in this proceeding are based on the sanctions in 37 C.F.R. § 42.12 and are not part of a suit sounding in tort for an abuse of process.

²¹ The Restatement states:

The gravamen of the misconduct for which the liability stated in this Section is imposed is not the wrongful procurement of legal process or the wrongful initiation of criminal or civil proceedings; it is the misuse of process, no matter how properly obtained, for any purpose other than that which it was designed to accomplish.

...

For abuse of process to occur there must be use of the process for an immediate purpose other than that for which it was designed and intended. The usual case of abuse of process is one of some form of extortion, using the process to put pressure upon the other to compel him to pay a different debt or to take some other action or refrain from it.

Id.

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PQA also argues, consistent with the *Noerr-Pennington* doctrine and the First Amendment, that PQA’s intent or purpose in filing a meritorious petition is legally irrelevant. Paper 67, 22–23 (citing *Nader v. The Democratic Nat. Comm.*, 555 F. Supp. 2d 137, 156–57 (D.D.C. 2008); *Razorback Ready Mix Concrete Co., Inc. v. Weaver*, 761 F. 2d 484, 487 (8th Cir. 1985)). VLSI argues that the *Noerr-Pennington* doctrine protects against liability, but it does not shield litigants from sanctions. Paper 74, 23 (citing *BE & K Const. Co. v. N.L.R.B.*, 536 U.S. 516, 537 (2002)). Intel argues that “[a]dopting VLSI’s new intent-based requirement also would conflict with Supreme Court precedent holding that “an objectively reasonable effort to litigate cannot be [a] sham regardless of subjective intent.”” Paper 78, 5–6 n.3 (quoting *Professional Real Estate Investors, Inc. v. Columbia Pictures Indus., Inc.*, 508 U.S. 49, 57 (1993); citing Paper 58, 5–6 (amicus CCIA: “[S]anctions are inappropriate—and barred by the First Amendment—with respect to the filing of a meritorious petition.”)).

Here, sanctions are based on the authority granted to the Board after notice and comment rulemaking and are not part of a suit sounding in tort for an abuse of process. I consider sanctions here in the context of determining whether the IPR process itself is being abused, which involves evaluating the totality of evidence including, but not limited to, the circumstances surrounding the initial filing of the petition. Moreover, even putting aside PQA’s act of filing an IPR petition, PQA’s other conduct merits sanctions, as discussed below.

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B. PQA's Conduct

The following summary is based on evidence provided by VLSI, which I hold as established facts in the absence of contrary evidence from PQA. *See Residential Funding Corp.*, 306 F.3d at 106 (“[I]f a party fails to obey a discovery order, the court ‘may make such orders in regard to the failure as are just,’ including, but not limited to, ‘[a]n order that . . . designated facts shall be taken as established for the purposes of the action in accordance with the claim of the party obtaining the order.’” (quoting Fed. R. Civ. P. 37(b)(2)(A))). “Even the mere failure, without more, to produce evidence that naturally would have elucidated a fact at issue permits an inference that” the evidence would have exposed facts unfavorable to the non-disclosing party. *Vodusek v. Bayliner Marine Corp.*, 71 F.3d 148, 156 (4th Cir. 1995).

While PQA’s Petition stressed that review was necessary to instill confidence in “the integrity of the patent system” and to ensure that innovative U.S. companies (and their consumers) are not unfairly taxed by entities asserting invalid patents (Pet. 2–3), its subsequent conduct called that objective into question.

A month after PQA filed its Petition, VLSI contacted PQA to discuss the IPR proceeding, but PQA declined to engage in talks at that time. *See* Paper 68, 5. PQA states that it discussed settlement only at VLSI’s behest. Paper 77, 1.

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

VLSI additionally alleges, and I find, that during this period, i.e., [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. Paper 50, 6 (citing, e.g., Exs. 2067, 2075, 2076). Also, [REDACTED]

[REDACTED]. *Id.* In the absence of an interrogatory response from PQA with respect to [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].

VLSI also alleges, and I find, that [REDACTED]

[REDACTED] Paper 74, 8. VLSI bases its allegation on the following email from PQA:

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[REDACTED]

Id. at 7–8 (citing Ex. 2069; Ex. 2076). I find VLSI’s allegation to be supported by the email it provided. *See* Ex. 2069 ([REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]).

It is undisputed that PQA has not accepted any settlement agreement and the parties have not settled. *See id.* at 8.

Also, as discussed above, PQA represented in its Petition that it had “exclusively engaged” Dr. Singh (Pet. 4) (emphasis in brief), which was the basis for the Board’s decision to deny institution in IPR2021-01056 involving Petitioner OpenSky. *See* IPR2021-01056, Paper 18, 5–9. PQA later attempted to qualify this representation. *Compare* Pet. 4 (“In contrast, Petitioner exclusively engaged Dr. Singh and Dr. Hall-Ellis to challenge the ’373 patent. Thus, OpenSky cannot present either expert for cross-examination as required.”), *with* Paper 67, 18 (“Similarly, while PQA’s engagement with Dr. Singh is ‘exclusive,’ that provision may be waived on request.” Ex. 1034.) Had PQA not made that false representation, OpenSky may have sought permission to engage the experts. Further, there is no

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evidence explaining why PQA retained the ability to prohibit Dr. Singh from working for other parties, including OpenSky. A reasonable and adverse inference would be that PQA did not believe review of the '373 patent was necessary to instill confidence in “the integrity of the patent system” and to ensure that innovative U.S. companies (and their consumers) are not unfairly taxed by entities asserting invalid patents (Pet. 2–3) but instead sought to benefit monetarily from the petition by working to have OpenSky’s petition denied so the PQA petition would be instituted.

I will analyze PQA’s conduct in more detail in the following section.

C. Case-specific Considerations

1. Petitioner’s interest in the proceeding

I am mindful that Congress did not itself include a standing requirement for IPRs. *See Cuozzo*, 579 U.S. at 279 (“Parties that initiate [IPRs] need not have a concrete stake in the outcome; indeed, they may lack constitutional standing.”); Paper 77, 22; *see also* Engine, 13–14 (“Congress created IPR so that any ‘person who is not the owner of a patent’ may file an IPR petition . . . It would be improper for the PTO to supplant that choice.”) (citations omitted). Instead, Congress left it to the USPTO to prescribe regulations, to “consider . . . the economy, the integrity of the patent system, the efficient administration of the Office, and the ability of the Office to timely complete proceedings” 35 U.S.C. § 316(b).

The Office has repeatedly instituted IPRs where the petitioner has not been sued for infringement. *See, e.g., Athena Automation Ltd., v. Husky Injection Molding Systems Ltd.*, IPR2013-00290, Paper 18, 12–13 (PTAB Oct. 25, 2013) (precedential) (declining to deny a petition based on assignor

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estoppel); *Fresenius Kabi USA, LLC v. Chugai Seiyaku Kabushiki Kaisha, Inc.*, IPR2021-01336, Paper 27, 48 (PTAB Feb. 23, 2022). In practice, however, there is commonly a high degree of interplay between IPR petitions/trials and Article III patent litigation. *See, e.g., The Patent and Trial Appeal Board: Examining Proposals to Address Predictability, Certainty, and Fairness*, Hearing Before the S. Comm. on Intellectual Prop., 117th Cong. at 1:14:27-1:14:37 (June 22, 2022) (testimony of Tim Wilson, Head of Patents and Intellectual Property Litigation, SAS Institute, Inc., stating that IPR petitions are typically filed in response to a patent infringement lawsuit).

Barring evidence to the contrary, there is little need to question the motives of a party sued for infringement. However, where a petitioner has not been sued for infringement, and is a non-practicing entity, legitimate questions may exist regarding whether the petitioner filed the petition for an improper purpose or one that does not advance the goals of the AIA or this Office. For example, an amicus identifies a concern with petitioners who file “petitions, filed for the primary purpose of obtaining a cash settlement” from patent owners in order to settle and terminate the proceeding. *See Naples*, 2. Not only would such a purpose not advance legitimate goals, but the PTAB proceedings under the AIA are not intended to be a tool for patent owner harassment.

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To be clear, there is nothing *per se* improper²² about a petitioner who is not a patent infringement defendant filing an IPR petition. For example, there may be circumstances in which a petitioner has not yet been sued, but believes it may be, or otherwise wants to make sure it has the freedom to operate. Alternatively, there may be circumstances in which a petitioner is planning to enter the field of technology that the patent protects and is trying to clear entry barriers or otherwise clarify whether they have freedom to operate. *See Engine*, 10–11. Or a petitioner may act on behalf of the public without having any research or commercial activities involving the challenged patent. *See Consumer Watchdog v. Wisconsin Alumni Rsch. Found.*, 753 F.3d 1258, 1260 (Fed. Cir. 2014).

Although it is not *per se* improper for a person not charged with infringement to file an IPR petition, the posture of a petitioner, in conjunction with other surrounding circumstances, could raise legitimate questions about whether the petition is reasonably designed to advance the beneficial aims of the AIA or this Office and whether, in addition, the filing amounts to an abuse of process.

So it is here. PQA has not been sued for infringing the '373 patent. *See Pet. 75*. When I asked whether PQA could be sued for infringement, PQA objected to the question and resisted answering, as detailed above. *See supra* § III.B.2; Paper 35, 8; Paper 67, 10–14. PQA has thus neither

²² I address here only what conduct is improper and do not suggest that all conduct that is not improper warrants institution. Such decisions are better suited for guidelines and notice-and-comment rulemaking.

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admitted that it infringes nor alleged that it does not infringe, despite my Order providing it an opportunity to do so, and has not substantiated its argument either way. PQA has stated that Intel has customers that might, arguably, infringe (but without stating whether it is one of Intel's customers), and PQA has not explained whether it is in the marketplace for products covered by the '373 patent. The lack of evidence on this point is directly attributable to PQA's failure to follow my Order and I draw negative inferences from that failure. *See Residential Funding Corp.*, 306 F.3d at 110 (finding that intentional acts that hinder discovery support an inference that the evidence was harmful to the non-producing party). Accordingly, I find the fact established that PQA does not believe that it may be sued for patent infringement in the future, and that fear of infringement did not motivate PQA to file its Petition.

PQA maintains that its interest is in the integrity of the patent system. Pet. 2–3. The record (and additional factors discussed below) belie that representation. Indeed, I ordered PQA to produce documentation and answer interrogatories related to its business purpose and membership, and it has not done so. In its briefing, PQA responds by stating that its “initial authorized business . . . is to challenge patent(s) to ensure patent quality,” but PQA refuses to disclose its members, despite my Order to do so. Paper 67, 8. Again, the lack of evidence of PQA's business purpose and membership is due to PQA's discovery misconduct and, therefore, I find the fact established that PQA did not file this case for its alleged purpose of testing patent quality or preserving the integrity of the patent system. Further, if PQA's sole motivation were to challenge the validity of the '373

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patent, it would not have represented that it had “*exclusively* engaged” Dr. Singh and stated that “[t]hus, OpenSky cannot present either expert for cross-examination as required.” Pet. 4 (citing 37 C.F.R. 42.51(b)(1)) (emphasis in brief). To the contrary, a purpose of preserving the integrity of the patent system would have motivated PQA to make Dr. Singh available to any other party challenging the ’373 patent. As noted above, this was the basis for the Board’s decision to deny institution to Petitioner OpenSky in IPR2021-01056. *See* IPR2021-01056, Paper 18, 5–9. Indeed, based on the record and adverse inferences, I find that the sole reason PQA filed the Petition was for the improper purpose of extracting money from VLSI after VLSI’s success before the jury.

2. *Recent trial verdict awarding significant damages*

The mere existence of a trial verdict (whether by jury or from the bench) does not automatically make the filing of a subsequent IPR on the involved patent(s) an abuse of process. Indeed, patents are often asserted, either in demand letters or in litigation, against multiple entities in serial fashion. Both those entities subject to current or future assertions, or potential assertions, and the public, have a vested interest in canceling invalid patents.

That said, an entity filing an IPR on the heels of a large jury verdict may, when combined with other facts, raise legitimate questions regarding the motivation behind the petition. *See* USIJ, 15–16 (discussing petitions filed after infringement verdicts).

Such is the case here. As the parties and amici are well aware, a jury in the Western District of Texas rendered a verdict of more than \$2 billion

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against Intel for infringing two VLSI patents, including the '373 patent (\$1.5 billion in damages). Ex. 1031, 6. PQA filed its petition shortly after the infringement verdict, and as noted in section IV(C)(1) of this opinion, without any established fear that it would be subject to a subsequent assertion. Together with the significant damages award, this suggests that the purpose of the IPR could be to extract a settlement from VLSI.

Notably, despite being given the opportunity, PQA has not provided adequate evidence that it had another purpose for filing this IPR. As explained previously, PQA flouted Mandated Discovery refusing to turn over or log internal communications that would have shed light on the “purpose” for which PQA was formed. Paper 68, 4. In addition, as discussed above, PQA failed to adequately respond to the interrogatories set forth in the Scheduling Order (Paper 35, 8–9). Accordingly, per the sanction for PQA’s discovery misconduct, I find that it has been established that PQA filed its Petition for the purpose of extracting payment from VLSI.

3. *Proximity of petitioner’s formation to jury award*

Large jury awards attract publicity and attention. When the evidence demonstrates that an IPR petitioner was formed from whole cloth soon after a damages award, and in particular a significant damages award, this suggests that the petitioner could be motivated to extract a financial windfall from the patent owner or the adjudicated infringer, rather than being motivated by any legitimate purpose.

Here, the evidence demonstrates that PQA was formed 15 weeks after a jury found that Intel infringed the '373 patent, and awarded VLSI \$1.5 billion in damages. *Compare* Ex. 1027 (Jury Verdict Form dated March 2,

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2021), *with* Ex. 1045 (PQA formation date of June 14, 2021). PQA then filed its Petition on July 7, 2021, three weeks after its formation. This timing, and the fact that PQA prevented OpenSky from also pursuing its proceeding to seek unpatentability of the '373 patent, in the absence of contrary evidence from PQA, supports the finding that PQA was formed in an attempt to capitalize on that verdict. Moreover, and as explained above, PQA has provided inadequate evidence that it was formed for another purpose, despite my Order giving it an opportunity to do so. Although PQA omits these details from its recitation of events, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].

Ex. 2075, 2076. As a sanction for that discovery violation, I find that it has been established that PQA was formed for the express and sole purpose of extracting payment from VLSI.

4. *Misleading arguments or misrepresentations of fact*

I find that PQA advanced a misleading or frivolous argument, misrepresented a fact, and/or otherwise engaged in an abuse of process, by representing in its Petition that it had exclusively engaged Dr. Singh, an expert who was relied on by another litigant in another proceeding, and later retracting this statement by stating that this was an exclusivity provision that could be waived upon request. *Compare* Pet. 4 (“In contrast, Petitioner exclusively engaged Dr. Singh and Dr. Hall-Ellis to challenge the '373 patent. Thus, OpenSky cannot present either expert for cross-examination as required.”), *with* Paper 67, 18 (“Similarly, while PQA’s engagement with Dr. Singh is ‘exclusive,’ that provision may be waived on request. Ex. 1034.

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Since PQA's engagement of Dr. Singh, no party (including OpenSky) has ever sought to engage him in connection with the '373 patent, thus PQA has never declined any such request.").

The statement in the Petition that PQA had exclusively engaged Dr. Singh appears to have been a misstatement of the exclusivity arrangement that implied that Dr. Singh could have worked with another party with PQA's consent. *See* Ex. 1034, 2.

One might argue that PQA merely changed its mind about whether it would waive its exclusive arrangement with Dr. Singh, and that it is inherent in an exclusive arrangement that the exclusivity may be waived, e.g., where the arrangement states that Dr. Singh will not accept new consulting engagements related to the challenged patent without prior written consent. *See* Paper 67, 18; Ex. 1034, 2. Even if this is the case, it strains credulity that PQA now states that "no party (including OpenSky) has ever sought to engage [Dr. Singh] in connection with the '373 patent." Paper 67, 18. Indeed, PQA's express statement in the Petition that "OpenSky cannot present either expert for cross-examination" would have led OpenSky to reasonably conclude that it would have been fruitless to seek permission from PQA. *Compare* Pet. 4, with Paper 67, 18. In other words, even if PQA had not originally been misleading in the Petition, its later arguments regarding the lack of attempts to engage the expert are misleading at best, which, again, indicates an abuse of process.

Further, PQA also engaged in an abuse of process by establishing an exclusive arrangement with a witness relied on by another party in another proceeding and interfering with that proceeding by informing the Board that

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the other party would be unable to cross-examine the witness. *See* Pet. 4. The Board relied on the statement in the Petition to dismiss the other proceeding. *See* IPR2021-01056, Paper 18, 9. This type of interference with OpenSky's Petition, through the use of an exclusive arrangement in combination with a purposeful statement in PQA's Petition that there was an exclusive arrangement that prevented OpenSky from obtaining institution, indicates an abuse of process. PQA made a point to state to the Board that Dr. Singh cannot be cross-examined in another proceeding, and the Board did not proceed with the IPR based on OpenSky's petition on this basis, which further demonstrates that PQA intended to interfere with another IPR. Pet. 4; IPR2021-01056 Paper 18, 9. The use of an exclusive arrangement and the assertion of a purposeful and misleading statement before the Board in order to favor its own petition over another one indicates an abuse of process.²³

5. *Filing a copycat petition*

As my Scheduling Order notes, filing a "copycat" petition is not inherently improper. Paper 35, 5 n.4. For example, under the current joinder rules, a time-barred party may file a copycat petition when it is

²³ I recognize that in some cases a party may have a legitimate interest in circumscribing an expert's work for another party, such as where the two parties are competitors and providing that expert access to confidential or privileged information may compromise that party's competitive position if permitted to use it for the benefit of the other party. *See, e.g., Digital Equip. Corp. v. Micro Tech., Inc.*, 142 F.R.D. 488, 492 (D. Colo. 1992) (acknowledging the risks inherent in allowing an expert to work for both sides). This is not such a case.

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seeking joinder as provided by the AIA. *See* 35 U.S.C. § 315(c); 37 C.F.R. §§ 42.122(b), 42.101(b). There may be circumstances, however, in which the filing of a petition that copies a previously denied petition may suggest an abuse of process.

The present case provides an example as it relates to PQA. In addition to PQA filing what was essentially a copy of Intel's IPR petition, which had previously been denied based on the *Fintiv* factors, PQA filed a copy of Intel's expert declaration. Ex. 2016; Ex. 2022. On these facts, this conduct suggests that PQA was attempting to file a petition with the lowest possible cost in an effort to generate leverage against VLSI.

D. Conclusion

Viewed as a whole, PQA's conduct has been an abuse of the IPR process, the patent system, and the Office. The totality of PQA's conduct evinces a singular focus on using an AIA proceeding to extort money. Despite being given the opportunity, PQA failed to offer a verifiable, legitimate basis for filing its IPR Petition, which was filed only after a district court awarded large monetary damages keyed to the subject '373 patent. PQA also made material misrepresentations in order to ensure that OpenSky's Petition would be denied so that PQA's Petition could proceed. And the Petition it filed was not generated by PQA, but was a copy of Intel's earlier petition. Further, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] *See* Ex. 2076.

Seeking an AIA trial for the primary purpose of extorting money, and representing that a party has an exclusive engagement with a witness relied

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on by another litigant do not comport with the purpose and legitimate goals of the AIA and are abuses of process. Further, PQA has made misrepresentations of fact and/or misleading arguments regarding the nature of this exclusivity. Opportunistic uses of AIA proceedings harm the IPR process, patent owners, the Office and the public. Naples, 2; USIJ, 4.²⁴ To safeguard the proper functioning of the patent system, and the confidence therein, it is incumbent on me and the USPTO to protect against that harm.

V. REMEDY FOR ABUSE OF PROCESS AND OTHER
SANCTIONABLE CONDUCT

The AIA granted the Office broad authority to prescribe regulations aimed at sanctioning the “abuse of process, or any other improper use of the proceeding.” 35 U.S.C. § 316(a)(6). Our existing regulations take full advantage of that authority and provide a broad range of potential sanctions to address such abuse and other sanctionable conduct, ranging from awarding “compensatory expenses” to “[j]udgment in the trial.” 37 C.F.R. § 42.12(a)(2), (3), (6), (b). These enumerated sanctions are not exclusive. The Federal Circuit has held that § 42.12(b) “allows the Board to issue sanctions not explicitly provided in the regulation.” *Voip-Pal.com, Inc.*, 976 F.3d at 1323. Accordingly, the Office has robust powers to sanction abuse of process and other sanctionable conduct where it occurs and to deter

²⁴ This situation thus meaningfully differs from others in which a “profit motive” was arguably present but there was not otherwise other evidence of improper conduct. *See, e.g., Coalition for Affordable Drugs VI, LLC v. Celgene Corp.*, Case IPR2015-01092, Paper 19 (PTAB Sept. 25, 2015) (denying motions for sanctions for abuse of process).

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similar abuse. The Director will ensure that the remedy suits the wrongdoing, both in this specific case and more generally when faced with evidence of an abuse of process or other conduct that thwarts, rather than advances, the goals of the Office and the AIA.

Here, in addition to any monetary sanctions I may levy (*see* below section VII), I must decide whether to maintain or dismiss the underlying proceeding.

A. Whether Dismissal is Appropriate

VLSI contends that the remedy for PQA’s abuse should be termination of this IPR. Paper 68, 2, 10–11. VLSI also argues that Intel should not be “allowed to take advantage of PQA’s misconduct at VLSI’s expense.” Paper 68, 24. VLSI asserts that Intel was a time-barred party, and that the Board has previously terminated joined time-barred parties when finding that an IPR was improperly instituted. *See id.* at 24–25 (citing *I.M.L. SLU v. WAG Acquisition, LLC*, IPR2016-01658, Paper 46, 3, 5 (PTAB Feb. 27, 2018); *Mylan Pharma Inc. v. Horizon Pharma USA, Inc.*, IPR2017-01995, Paper 71, 12–13 (PTAB Mar. 17, 2019); *Intel Corp., v. Alacritech, Inc.*, IPR2018-00234, Paper 66, 23 (PTAB June 4, 2019); *Sling TV, LLC v. Realtime Adaptive Streaming, LLC*, IPR2018-01331, Paper 39, 8 (PTAB Jan. 17, 2020)).

Intel responds that, in “VLSI’s cited cases, the IPRs were terminated because the **original** petitioner was **statutorily barred** from bringing the petition in the first instance,” so the petition was void *ab initio*. *See* Paper 78, 12 (emphasis in original). That reasoning, however, does not apply to the current proceeding. As Intel correctly points out, in other cases,

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the Board has allowed a joined petitioner to step into an active role after the original petitioner was terminated from the proceeding. *See id.* at 12–13 (citing *Apple Inc. v. Traxcell Techs., LLC*, IPR2021-01552, Paper 19, 2 (PTAB May 26, 2022); *AT&T Servs., Inc. v. Convergent Media Sols., LLC*, IPR2017-01237, Paper 11, 26–28 (PTAB May 10, 2017); *Qualcomm Inc. v. Bandspeed, Inc.*, IPR2015-01577, Paper 12 at 2–3, 6, 8 (PTAB Nov. 16, 2015)).

Amici recognize that I must “weigh the policy goals of the Office and the AIA” when facing abusive behavior because “the public has a clear interest in discouraging conduct that is abusive or otherwise thwarts Congress’s goals in passing the AIA and the Office’s goals in overseeing post-grant proceedings.” AIPLA 5–6. Many amici have pointed out that “[o]ur patent system is rooted in the fact that valid claims . . . support innovation, progress, and the public’s interests” (Engine 3) while “[i]nvalid patents unduly restrict innovation, competition, and access to knowledge” (PIPLI 2). *See* CCIA, 2; HTIA, 7; BSA, 10. Accordingly, “ensuring that invalid patents do not remain in force [is] one of the core missions of the PTAB” (CCIA 2) and “AIA trials thus broadly aim to ‘protect the public’s ‘paramount interest in seeing that patent [rights] are kept within their legitimate scope’” (HTIA, 5 (quoting *Cuozzo*, 579 U.S. at 279–80) (internal citations omitted)). *See* Unified, 5–6, Engine, 7–8. On the other hand, other amici highlight that “the patent system incentivizes inventors to publicly disclose innovations that advantage the public by granting an inventor a patent, upon which an ‘exclusive enjoyment is guaranteed.’” Centripetal, 14; USIJ, 15; Maalouf, 6. Those amici point out that the legislative history

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of the AIA shows Congress recognized the importance of reliable patent rights. Maalouf, 6–7 (citing H.R. Rep. No. 112-98 pt. 1, at 48 (2011)); Centripetal, 13; USIJ, 15.

Going back to first principles, to further the objectives of this Office in promoting and protecting innovation for the greater good of the public, I must advance the need for reliable patent rights and the benefits of removing patents that do not support innovation. *See* Lamar Smith, *Don't Weaken the Leahy-Smith America Invents Act*, BLOOMBERG LAW (Mar. 30, 2022), at 3 (“In the committee report on the AIA, we wrote about the importance to inventors of having ‘quiet title’— clear ownership that can’t be challenged.”); H.R. Rep. No. 112-98, pt. 1, at 40 (2011), 2011 U.S.C.C.A.N. 67, 69; S. Rep. No. 110-259, at 20 (2008) (the congressional intent behind the AIA was “to establish a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs.”).

I recognize that PQA should not benefit from its abusive use of the IPR process. Accordingly, due to PQA’s abuse of the process and misrepresentation of fact or misleading argument, I dismiss PQA from this the proceeding, subject to the Director, Board, and USPTO retaining jurisdiction over the issuance of sanctions. *See* 37 C.F.R. § 42.12(b)(6), (8). Intel remains in this proceeding as the sole Petitioner.

On the issue of whether to terminate the proceeding, the unique dynamics of this case, coupled with the public interest in evaluating patent challenges with compelling merits, counsels that I permit this IPR to continue only if the unpatentability merits were compelling as of the time of

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institution and on the record as it existed at that time.²⁵ Predicating dismissal on the application of the compelling-merits standard best serves the competing interests here.²⁶

B. Compelling Merits Analysis

As I have stated previously, “[c]ompelling, meritorious challenges are those in which the evidence, if unrebutted at trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” Memorandum at 4. A compelling merits challenge is a higher standard than the reasonable likelihood required for the institution of an IPR under 35 U.S.C. § 314(a). A challenge can only “plainly lead to a conclusion that one or more claims are unpatentable” (*id.*) if it is highly likely that the petitioner would prevail with respect to at least one challenged claim.

²⁵ My decision to conduct a compelling-merits determination here, per the Memorandum, is limited to the facts of this case and should not be treated as an endorsement of retroactive application of that memorandum to institution decisions made before it issued.

²⁶ The circumstances of this particular case are unusual and are not likely to reoccur. Apart from the Memorandum that will require an earlier determination of compelling merits in future cases with similar fact patterns, the Board issued its Decision several months before *Sotera* was designated precedential. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (issued Dec. 1, 2020, designated precedential Dec. 17, 2020) (applying *Fintiv* and instituting review after the Petitioner filed a broad stipulation to limit grounds in district court, addressing factor 4 in *Fintiv*). Further, the USPTO is working on policy-making that will address some of the facts raised in this case.

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In assessing compelling merits, I analyze the evidence and the parties' arguments as they existed at the date of institution. PQA filed a Petition (Paper 1) requesting institution of an *inter partes* review of claims 1–16 (all claims) of the '373 patent. In its Petition, PQA relies on three grounds. *Id.* at 2. For all independent claims, 1, 9 and 16, and for dependent claims, 2–7, 10, 11, and 13–15, PQA contends the claims are obvious in view of three references: Harris (US 5,867,719), Abadeer (US 2006/0259840 A1) and Zhang (US 2003/0122429 A1). *Id.* For dependent claims, 2, 8, 11 and 12, PQA relies on the combination of Harris, Abadeer, and Zhang, also combined with additional art. *Id.* VLSI filed a Preliminary Response. Paper 7. As authorized, PQA filed a Preliminary Reply (Paper 8), and VLSI filed a Preliminary Sur-Reply (Paper 9). The Board, in its Institution Decision, concluded that PQA's Petition showed a reasonable likelihood that it would prevail in establishing the unpatentability of at least one challenged claim, and instituted *inter partes* review. Paper 10, 24. The Board's Institution Decision fully describes the '373 patent and relevant prior art disclosures. *See generally id.* I will not repeat that analysis here, except to the extent necessary to inform my compelling merits determination.

As noted in the Institution Decision, PQA "relies on Harris for a system including switchable voltages provided to memory and other system[s] in an integrated circuit." Paper 10, 13. The Institution Decision further notes that PQA relies on both Harris's "failure mode" as well as its "low power feature" to teach the claimed "requirement of providing different voltages to the memory circuit depending on the levels of the two voltages." *Id.* at 16 (quoting Pet. 44–46). The Board, applying the

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reasonable likelihood standard for institution, concluded that “Harris’s low power feature discloses the claimed switching.” *Id.* at 18; *see id.* at 24. Based on that conclusion, the Board declined to resolve the parties’ dispute on whether the failure mode also met the limitation. VLSI filed for rehearing but did not challenge the Board’s merits, focusing only on the Board’s discretion. Paper 13.

I have considered the record as well as each of VLSI’s arguments and I find that the Petition presented compelling merits at the time of institution based on the rationale set forth in the Institution Decision as well as my own analysis of the record at institution. I first note that VLSI’s Preliminary Response focuses much of its argument on Harris’s teachings alone, misapprehending Harris’s various modes (e.g., normal mode, testing mode, failure mode, and low power feature) as wholly independent systems, rather than features provided by the same computing hardware system. *See e.g.*, Prelim. Resp. 34, 36–37; *see generally id.* at 31–55. As the Board explains, and as Harris supports, those modes are situationally-dependent modes implemented by the same underlying hardware system. Institution Decision 20–21. For example, in “a normal mode of operation,” Harris’s memory array “would be powered by a supply voltage applied to VDD terminal 132.” Ex. 1003, 3:1–2; *see id.* 3:15–18, Fig. 1. And, where Harris’s “test mode . . . [is] used as a low power feature, the second power supply voltage (Vstby or Vdd) is provided to the at least one memory array while the first power supply voltage (Vdd or Vstby) which is being supplied to the CPU is lowered so that lower power is consumed in the data processor while data within the at least one memory array is maintained.” *Id.* at 4:65–5:4.

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Further, VLSI's general assertion that Harris fails to teach "switching" voltages does little to support its position, as VLSI does not specifically identify any limitations it asserts Harris's modes fail to teach, suggest, or render obvious.

Although VLSI's Preliminary Response also takes issue with the compatibility of the Harris and Zhang combination (Prelim. Resp. 38–40), those arguments also do not persuade me that the Petition fails to present compelling merits at the institution stage. VLSI's argument that "Zhang never teaches switching between separate regulated voltages" (Prelim. Resp. 37–39) is based on features in Zhang that are not relied upon in, or needed by, Petitioner's combination. Instead of relying on Zhang to teach switching voltages, at the institution stage Petitioner presents a compelling case that a POSITA would have been motivated to use "regulated" voltages in Harris, as taught in Zhang, and provides three independent rationales to support its combination. Pet. 37–39. VLSI's Preliminary Response does not adequately address those proffered rationales, instead, arguing again about switching. *See* Prelim. Resp. 38–40. I also note that VLSI makes no argument with respect to Abadeer's teaching on determining the minimum operating voltage and storing that voltage in non-volatile memory or whether it would be obvious to combine Abadeer's teaching with Harris and Zhang. Nor does Patent Owner contest Petitioner's three proffered rationales for combining Harris and Abadeer. Pet. 30–33. Accordingly, I determine that the record, as it existed at the time of institution, presented compelling merits.

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My determination of compelling merits here is based only on the record as it existed at institution, and I recognize that all relevant evidence likely will not have been adduced at that point in time. The record as developed during trial may have adduced additional evidence that may support a different determination. Thus, the merits of the Petition may be rebutted at trial, and, accordingly, a determination of compelling merits should not be taken as a signal to the ultimate conclusion after trial.

I therefore lift the stay in the underlying proceeding. The parties will have an additional opportunity to seek Director review of the Final Written Decision.

VI. REQUESTS FOR IN CAMERA REVIEW

VLSI requested that I review in camera documents of PQA. *See, e.g.*, Paper 43. [REDACTED]

[REDACTED]. Paper 44. No other parties request in camera review. For the reasons explained above, however, the evidence exchanged as Mandated Discovery is sufficient to resolve this Director review without resorting to in camera review. Accordingly, the request for in camera review is denied.

VII. SHOW CAUSE

Finally, for all the reasons discussed above, PQA also is ordered to show cause as to why it should not be ordered to pay compensatory expenses, including attorney fees, to VLSI as a further sanction for its abuse of process and misrepresentation of fact or misleading argument. 37 C.F.R. § 42.12(b)(6). Within 30 days of this Decision, PQA and VLSI shall each file a 25-page brief addressing whether an award of attorney fees is

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appropriate, and if so, how such fees should be determined, e.g., the appropriate time frame for which fees should be assessed. PQA and VLSI may each file a 10-page responsive brief, due two weeks from the date the initial briefs responding to the show cause order are filed.

VIII. MOTIONS TO SEAL

PQA has also filed three motions to seal, i.e., relating to an agreement between PQA and VLSI to keep certain discussions confidential. Paper 49; Paper 75; Paper 79. VLSI also filed a motion to seal. Paper 66. Intel also filed a motion to seal. Paper 72.

In Paper 49, PQA moves to file under seal Exhibits 1046 and 1047, as well as portions of its Opening Brief in Response to Director Review that quote or describe those documents and/or communications related to those documents. Paper 49, 1.

In Paper 75, PQA states that it “moves to file under seal Patent Owner’s Exhibits 2029, 2064–2080 and 2084–2087 and portions of Papers 50, 51, and 65 that quote or describe those confidential exhibits. PQA also moves to file under seal Petitioner’s Exhibits 1054–1061 and portions of Paper 71 that quote or describe those confidential exhibits.” Paper 75, 1.

In Paper 79, PQA states that it “moves to file under seal portions of Patent Owner’s Responsive Brief Paper 74 that quote or describe confidential exhibits. . . . The arguments presented here track those made in Paper 75.” Paper 79, 1.

VLSI counters that “

” Paper 83, 2. VLSI

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states that “[REDACTED]
[REDACTED]
[REDACTED]” *Id.* at 5–6 ([REDACTED]
[REDACTED]). VLSI also argues that [REDACTED]
[REDACTED]. *Id.* at 7–8.
VLSI further argues that [REDACTED]
[REDACTED]. *Id.* at 8–9. Additionally, VLSI argues that
[REDACTED]
[REDACTED]. *Id.* at 9–10. VLSI makes similar arguments
in its oppositions to Papers 49 and 79. *See* Papers 82 and 84.

PQA replies that VLSI has not established a crime or fraud. *See* Paper 86, 2; *see also* Papers 85 and 87.

VLSI moves to seal Exhibits 2080, 2086, 2088, and 2089 relating to privilege logs, and certain portions of VLSI’s brief relating to these exhibits. *See* Paper 66, 1.

Intel moves to seal portions of its responsive brief because it contains information that VLSI and PQA have identified as confidential. *See* Paper 72, 1.

Although I find an abuse of process, I find that public policy favors allowing parties to discuss settlement in a confidential setting if they so agree, and I do not find that VLSI has established a sufficient exception to that policy on this record. Further, I find that public policy favors allowing the privilege logs to remain confidential. Accordingly, I grant the motions to seal.

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IX. ORDER

For the foregoing reasons, it is hereby:

ORDERED that PQA is dismissed from the proceeding, subject to the Director, Board, and USPTO retaining jurisdiction over the issue of sanctions;

FURTHER ORDERED that Intel remains the lead petitioner in this proceeding;

FUTHER ORDERED that the stay of the underlying proceeding is lifted;

FURTHER ORDERED that PQA and VLSI shall file a brief responding to the show cause order for PQA, addressing whether compensatory expenses should be ordered as a further sanction for PQA's abuse of process. Briefing shall be filed within 30 calendar days of this decision and shall be limited to 25 pages;

FURTHER ORDERED that PQA and VLSI may each file a 10-page responsive brief, due two weeks from the date the initial briefs responding to the show cause order are filed; and

FURTHER ORDERED that PQA's, VLSI's, and Intel's motions to seal (Papers 49, 66, 72, 75, and 79) are granted.

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PETITIONER:

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com

Bruce Slayden
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Parham Hendifar
Patrick Maloney
Jason Linger
LOWENSTEIN & WEATHERWAX LLP

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weatherwax@lowensteinweatherwax.com

smith@lowensteinweatherwax.com

rose@lowensteinweatherwax.com

hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

Director_PTABDecision_Review@uspto.gov
571-272-7822

Paper No. 108
Date: January 27, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED
STATES PATENT AND TRADEMARK OFFICE

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

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Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

ORDER
Lifting the Stay of the Underlying Proceeding;
Restoring PQA as a Party
37 C.F.R. § 42.5

¹ Intel Corporation (“Intel”), which filed a petition in IPR2022-00479, was joined as a party to this proceeding. Paper 30.

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On June 7, 2022, I ordered a *sua sponte* Director review of the Board’s Institution Decision in this proceeding. Paper 31. On July 7, 2022, I issued a Scheduling Order for the Director review. Paper 35. The Scheduling Order set forth the scope of my review, provided notice that an abuse of process finding was under consideration, ordered mandated discovery and interrogatories, and provided an opportunity for briefing. *Id.*

In a subsequent Order on July 29, 2022, I stated that “[a]s highlighted in the Scheduling Order, failure to comply with my Order may be sanctionable. . . . For example, and without limitation, sanctions may include ‘[a]n order holding facts to have been established in the proceeding.’” Paper 39, 3–4 (citing 37 C.F.R. § 42.12).

On December 22, 2022, I issued my Decision on Director Review. In that decision, I found that Petitioner Patent Quality Assurance, LLC (“PQA”) failed to comply with the discovery mandated in the Scheduling Order, despite my notice that such failure may be sanctionable. Paper 101 (“Dec.” or “Decision”), 4. As I cautioned may occur, I held certain facts adverse to PQA to have been established in the proceeding as a sanction for failing to comply with mandated discovery. Dec. at 3. Due to the totality of its conduct, including its failure to comply with discovery, I dismissed PQA from this proceeding, subject to the Director, Board, and USPTO retaining authority over the issuance of sanctions. Dec. at 4. I further ordered PQA “to show cause as to why it should not be ordered to pay compensatory expenses, including attorney fees, to VLSI as a further sanction for its abuse of process and misrepresentation of fact or misleading argument.” Dec. at 62 (citing 37 C.F.R. § 42.12(b)(6)). On January 10, 2023, I issued an Order granting PQA an extension of time until January 19, 2023, to file its request for rehearing of my Decision. Paper 104.

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On January 11, 2023, PQA filed a rehearing request, styled as a motion for reconsideration, arguing that the Decision identifies for the first time the allegedly violative conduct of exclusively engaging an expert witness and allegedly misrepresenting the nature of PQA's exclusive engagement. Paper 105 ("Motion" or "Mot."), 2. PQA also argued that the Decision identifies for the first time the sanction of dismissal and certain specific adverse inferences. *Id.* PQA argued that it should have been afforded an order to show cause describing the violative conduct and specific sanctions and an opportunity for briefing to show why the specific sanctions should not be imposed. *See id.* at 1–2 (citing 37 C.F.R. § 42.11(d)(3)). PQA also requested that I withdraw the sanctions imposed in the Decision. *Id.* at 3.

On January 18, 2023, I entered an Order, *inter alia*, granting the motion to the extent that I provided PQA with an opportunity to brief, within 7 days and limited to 10 pages, the subject of its rehearing request on the merits and to show cause why sanctions should not be imposed on the argued bases. Paper 106, 3. Further, I stayed the underlying proceeding pending the disposition of the rehearing, and adjusted the time period for issuance of a final determination in this proceeding, which involves joinder. 35 U.S.C. § 316(a)(11); 37 C.F.R. § 42.100(c).

On January 24, 2023, PQA sent an email (Ex. 3023) requesting a stay of the deadline for briefing set in my Order (Paper 106) and notifying the Office that it had filed a petition for mandamus at the U.S. Court of Appeals for the Federal Circuit, seeking review of the Decision and other Orders and requesting that the stay of the underlying proceeding be lifted. Ex. 1063. In response, I provided an extension of time until January 27, 2023, for PQA to

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file its response to my Order (Paper 106) and authorized PQA to request additional pages or time as needed. *See* Ex. 3024. PQA responded by declining to further participate in its request for rehearing, now arguing that “as an unlawfully dismissed party,” it is “no longer subject to the Office’s jurisdiction.” Paper 107, 1.

Because rehearing on the issue of sanctions is on-going, I vacate the portion of the Decision (Paper 101) that orders the dismissal of PQA from the proceeding and I restore PQA as a petitioner in this proceeding, which will facilitate my consideration and full resolution of PQA’s rehearing request and the order to show cause. *See* 37 C.F.R. § 42.11(d)(3). Now that I have vacated the portion of my order dismissing PQA from this proceeding, the predicate for PQA’s stated basis for declining to continue to participate in the rehearing proceedings it initiated (which are grounded in its lack of continuing party status) no longer holds true. While it may choose not to show cause, because PQA’s party status has been restored and because it has indisputably now received notice that it is facing possible sanctions, including a possible order requiring it to pay VLSI’s fees per 37 C.F.R. § 42.12(b)(6), PQA cannot avoid possible sanctions through continued non-participation.

PQA has until February 1, 2023, to file its response to my Order (Paper 106). PQA may request a reasonable extension of this deadline or a reasonable expansion of the page limit. *See* Ex. 3024.

While I originally thought that PQA would prefer an opportunity to complete briefing on the rehearing it requested before the agency issued a final written decision, its Petition for Mandamus makes clear that is not the case. As reflected in the Decision, I do not consider a stay necessary while

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resolution of the sanctions question remains pending. Dec. at 63. Therefore, I lift the stay of the underlying proceeding. As stated in my Order (Paper 106), “[i]n accordance with 37 C.F.R. § 42.100(c), I hereby adjust the time period for a final determination in this proceeding, which involves joinder to permit consideration of the pending issues.” *Id.* at 4.

For the foregoing reasons, it is hereby:

ORDERED that the stay of the underlying proceeding is lifted; and
FURTHER ORDERED that PQA is restored as a petitioner.

PETITIONER:

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com

Bruce Slayden
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

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PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Parham Hendifar
Patrick Maloney
Jason Linger
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
smith@lowensteinweatherwax.com
rose@lowensteinweatherwax.com
hendifar@lowensteinweatherwax.com
maloney@lowensteinweatherwax.com
linger@lowensteinweatherwax.com

Director_PTABDecision_Review@uspto.gov
571-272-7822

Paper No. 111
Date: February 3, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED
STATES PATENT AND TRADEMARK OFFICE

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

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Before MEGAN CARLSON, *Supervisory Paralegal*.

ORDER
37 C.F.R. § 42.5

¹ Intel Corporation (“Intel”), which filed a petition in IPR2022-00479, was joined as a party to this proceeding. Paper 30.

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The Patents Ombuds Office at the U.S. Patent and Trademark Office received an unsolicited anonymous and improper ex parte communication regarding this proceeding. A copy of the communication has been provided to the parties and placed on the record under seal as Exhibits 3029 and 3030 (hereinafter, “the submission”) and designated as “Parties and Board only.”

The Director will not consider the submission in reaching a decision on Director review. *See* 37 C.F.R. § 42.5(d). In addition, the Board will not consider the submission. *Id.*

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PETITIONER:

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
Dominic Massa
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com
dominic.massa@wilmerhale.com

Bruce Slayden
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Parham Hendifar
Patrick Maloney
Jason Linger

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Edward Hsieh

LOWENSTEIN & WEATHERWAX LLP

weatherwax@lowensteinweatherwax.com

smith@lowensteinweatherwax.com

rose@lowensteinweatherwax.com

hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

hsieh@lowensteinweatherwax.com

[Director PTABDecision Review@uspto.gov](mailto:Director_PTABDecision_Review@uspto.gov)
571-272-7822

Paper No. 117
Date: February 23, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED
STATES PATENT AND TRADEMARK OFFICE

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229¹
Patent 7,523,373 B2

Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

ORDER

Requests for Discovery, For Partial Reconsideration, To Seal, and
Order to Show Cause
37 C.F.R. §§ 42.5, 42.11, 42.51

¹ Intel Corporation (“Intel”), which filed a petition in IPR2022-00479, was joined as a party to this proceeding. Paper 30.

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This Order resolves certain of the parties' requests relating to an anonymous ex parte communication previously sent to the USPTO. *See* Paper 111.

On February 3, 2023, Supervisory Paralegal Megan Carlson provided a copy of the ex parte communication to the parties and placed it on the record under seal as Exhibits 3029 and 3030 ("the submission"), and designated the submission as available to "Parties and Board" only. Paper 111. Ms. Carlson indicated that neither the Director nor the Board would consider the submission. *Id.* (citing 37 C.F.R. § 42.5(d)).

On February 9, 2023, I issued an Order denying the request of Petitioner Patent Quality Assurance, LLC ("PQA") to expunge the submission and denying the request of Patent Owner VLSI Technology LLC ("VLSI") to designate the submission as public instead of Parties and Board only. Paper 112. I explained that the steps of putting the submission on the record and putting it under seal, as Parties and Board only, were taken to balance the Office's interest in transparency with its interest in not further disseminating such communications. *Id.*

1. VLSI's Request for Discovery

On February 15, 2023, counsel for VLSI requested, via email (Ex. 3034), that the Director and/or the Board grant discovery, in view of the submission.² The email represented that PQA and Intel opposed the request. I construe VLSI's request as relating to my decision on Director Review of the Board's institution decision. *See* Paper 102, 6. I authorize VLSI to file a

² The emails indicated herein have been entered as Parties and Board only. The parties are requested to confer and jointly submit public versions of the emails which do not reflect the content of the submission. When public versions are available, they will be entered on the record.

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motion for additional discovery pursuant to 37 C.F.R. § 42.51(b)(2), subject to the following caveats. First, VLSI's paper must be filed as Parties and Board only. Second, I will only consider admissible evidence in support of VLSI's motion. *See* 37 CFR § 42.62(a). Accordingly, I will only consider the request for discovery to the extent that it does not rely on information from the ex parte submission. *See* Paper 111. VLSI may not cite, repeat, or otherwise invoke information from that submission which, as has already been explained, I will not consider in this proceeding. *Id.* Third, in its paper VLSI should explain why this discovery is "necessary in the interest of justice," coming as it does so late in the proceeding. *See Garmin Int'l, Inc. v. Cuozzo Speed Techs. LLC*, Case IPR2012-00001, Paper 26 at 6 (PTAB March 3, 2013) (precedential). In particular, VLSI should explain why it could not have filed this motion sooner had it exercised reasonable diligence. Finally, VLSI should come forward with evidence "tending to show beyond speculation that in fact something useful will be uncovered," again without reference to the submission. *Id.*

VLSI's motion is due by March 2, 2023, but VLSI may self-expedite its request by filing the motion sooner. PQA and Intel are not authorized to file responsive briefing at this time, but I may authorize responsive briefing if I determine that it is warranted by VLSI's motion. I will not grant the motion without having received briefing by PQA and Intel.

2. VLSI's Request for Reconsideration

On February 17, 2023, VLSI also filed publicly a request (Paper 116) for reconsideration of the statement in Paper 111 that the ex parte submission will not be considered by me, on Director review, or by the

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Board. I deny that request because the submission was made ex parte and anonymously, and was not authorized. *See* 37 CFR § 42.5(d).

3. PQA's Request to Seal

PQA has requested, via email (Ex. 3035), that Paper 116 be sealed as Parties and Board only because VLSI discloses the substance of Exhibit 3030 in Paper 116, wherein Exhibit 3030 is not publicly available. VLSI has responded, via email (Ex. 3036), that it has cited Exhibit 3032 (an email from VLSI to the Board), which is public, and that the information provided in Paper 116 is materially the same as that available in Exhibit 3032. However, VLSI's citations to Exhibit 3032 occur on page 1 of Paper 116, whereas PQA has pointed to other material on pages 2–3 of Paper 116. Moreover, I discern differences between the content of Paper 116 and the publicly available Exhibit 3032. *Compare* Paper 116, 2–3, *with* Ex. 3032. I grant PQA's request to designate Paper 116 as Parties and Board only because the underlying material in Exhibits 3029 and 3030, and referenced in Paper 116, is designated Parties and Board only.

4. Show Cause Order

Further, I order VLSI to show cause why it should not be sanctioned for publicly filing a paper containing information that was designated Parties and Board only in Paper 116. I note that VLSI was aware that the submission was Parties and Board only, that VLSI previously requested that the submission be designated public, and that I previously denied that request. Paper 112. This is not the first time VLSI has filed information publicly that should have been filed Parties and Board only. *See* Ex. 3012. In particular, VLSI should show cause as to why it should not be ordered to file all future filings as Parties and Board only, to provide compensatory

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expenses to PQA for its request that Paper 116 be sealed, and/or to provide compensatory expenses to PQA and Intel for the costs of any briefing on the discovery requested by VLSI, including attorney's fees. *See* 37 C.F.R. §§ 42.12(b).

I emphasize that the motion for discovery and the order to show cause do not stay the underlying proceeding.

For the foregoing reasons, it is hereby:

ORDERED that VLSI is authorized to file a motion for additional discovery, designated as Parties and Board only, limited to 7 pages and due by March 2, 2023, and consistent with the instructions herein;

FURTHER ORDERED that PQA's request to seal is *granted*;

FURTHER ORDERED that VLSI's request for reconsideration of Paper 111 is *denied*; and

FURTHER ORDERED that VLSI is ordered to show cause why sanctions should not be imposed. VLSI is authorized to file a brief in response limited to 10 pages and due by March 2, 2023.

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PETITIONER:

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com

Bruce Slayden
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Parham Hendifar
Patrick Maloney
Jason Linger
LOWENSTEIN & WEATHERWAX LLP

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Patent 7,523,373 B2

weatherwax@lowensteinweatherwax.com

smith@lowensteinweatherwax.com

rose@lowensteinweatherwax.com

hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

Trials@uspto.gov
571-272-7822

Paper No. 127
Date: May 24, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORPORATION and
PATENT QUALITY ASSURANCE, LLC,
Petitioners,*

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229
Patent 7,523,373 B2

Before THOMAS L. GIANNETTI, BRIAN J. MCNAMARA, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

DECISION
Denying Patent Owner's Request on Rehearing of
Institution Decision and Grant of Joinder
37 C.F.R. § 42.71(d)

* Intel Corporation, which filed a petition in IPR2022-00479, has been joined as a party to this proceeding. Paper 43.

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Patent 7,523,373 B2

I. INTRODUCTION

We instituted review of claims 1–16 (all claims, or “the challenged claims”) of U.S. Patent No. 7,523,373 B2 (Ex. 1001, “the ’373 patent”), pursuant to a Petition (Paper 1, “Pet.”) filed by Patent Quality Assurance, LLC. Paper 10 (“Institution Decision”).

Patent Owner requested rehearing and Precedential Opinion Panel (POP) review of our Institution Decision. Paper 13. The Director initiated review of our Institution Decision (Paper 31) and dismissed Patent Owner’s request for rehearing and POP review (Paper 32).

We granted Intel Corporation’s (“Intel’s”) Motion for Joinder in IPR2022-00479, thus adding Intel as a petitioner here. Paper 30 (“Joinder Decision”). Patent Owner requested rehearing and POP review of our Joinder Decision. Paper 33 (“Req. Reh’g”). The Office denied the POP request, leaving the rehearing request for our consideration. Paper 40 (Order denying POP Request).

Patent Owner requests rehearing of the Joinder Decision on three grounds. First, Patent Owner asserts that we should have not permitted a “time-barred party” (i.e., Intel) to join this proceeding. Req. Reh’g 10. Second, Patent Owner asserts that the Joinder Decision failed to balance the *Fintiv*¹ factors. *Id.* at 13. Finally, Patent Owner asserts our decision is “at odds with *Apple v. Uniloc*² and conflicts with other Board panels.” *Id.* at 14–15. For the reasons that follow, we deny the Request for Rehearing.

¹ *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”).

² *Apple Inc. v. Uniloc 2017 LLC*, IPR2020-00854, Paper 9 (PTAB Oct. 28, 2020) (precedential) (“*Uniloc*”).

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II. ANALYSIS

Patent Owner argues that joinder should not allow Intel, an otherwise time-barred party, to join a proceeding with grounds the party previously presented for review but were discretionarily denied. Req. Reh’g 9–13. Patent Owner’s argument is not based on statutory prohibitions or other errors of fact or law, but on policy arguments regarding discretionary denial under *Fintiv* and *General Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017) (precedential). *See* Req. Reh’g 10–13. Questions raised by those arguments are best suited for the Director to resolve through POP review or Director review. Patent Owner has already pursued that approach here, to no avail. Paper 40 (Order denying POP Request).

Patent Owner’s policy arguments do not present a proper basis for rehearing our Joinder Decision. In evaluating a rehearing request, we look to 37 C.F.R. § 42.71(c), which provides: “When rehearing a decision on petition, a panel will review the decision for an abuse of discretion.” We also look to 37 C.F.R. § 42.71(d), which provides: “The request must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed in a motion, an opposition, a reply, or a sur-reply.” Patent Owner’s rehearing request, to the extent it is based on our decision to join a party that, but for the option of joinder, would be time-barred, does not assert that we overlooked or misapprehended anything. Instead, it seeks a change in Office policy, which is not a proper basis for a rehearing request directed to the panel.

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Patent Owner submits that our Joinder Decision did not adequately address the *Fintiv* factors. Req. Reh’g 13–14. On June 21, 2022, the Director issued a Memorandum directed to the Board setting forth an “interim procedure” for addressing discretionary denials of PTAB petitions under *Fintiv*.³ The June 21, 2022 Memorandum states that “compelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel.” *Id.* at 4. The Director has determined that the Petition presented a challenge with compelling merits (Paper 102, 5–6, 59–63), which “alone demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*” (June 21, 2022 Memorandum at 5). Patent Owner’s argument that *Fintiv* has been overlooked is, therefore, another disagreement with a policy decision by the Director and not a proper basis for rehearing by the panel.

Patent Owner argues also that the Joinder Decision is “at odds with” *Uniloc*. Req. Reh’g 15. As we have explained, however, the facts here differ significantly from those in *Uniloc*. Joinder Decision at 8–9. Similarly, we addressed Patent Owner’s argument that another Board decision counsels in favor of denying joinder. *Id.* at 9–10 (discussing *HTC Corp. v. Ancora Techs., Inc.*, IPR2021-00570, Paper 17 at 9–10 (PTAB June 10, 2021)). Patent Owner seeks to reargue positions it made opposing joinder that we rejected, and does not identify how we misapprehended or overlooked its positions. Nothing in Patent Owner’s Request for Rehearing warrants reversing our decision.

³ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

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The remainder of Patent Owner's arguments relate to Director Review. Req. Reh'g 6–9. These have already been addressed by the Director. Paper 102, 55–63 (public version); *see* Paper 101 (confidential version).

III. CONCLUSION

For the reasons discussed above, we conclude Patent Owner has not shown we misapprehended or overlooked anything in our Joinder Decision or that the Joinder Decision was an abuse of discretion. We therefore deny Patent Owner's Request for Rehearing.

IV. ORDER

Accordingly, it is

ORDERED that Patent Owner's Request for Rehearing is denied.

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PETITIONER:

Benjamin S. Fernandez
David L. Cavanaugh
Steven J. Horn
Dominic E. Massa
WILMER CUTLER PICKERING HALE AND DORR, LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
steven.horn@wilmerhale.com
dominic.massa@wilmerhale.com

Bruce W. Slayden II
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

PATENT OWNER:

Baback Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Edward Hsieh
Parham Hendifar
Patrick Maloney
Jason C. Linger
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
smith@lowensteinweatherwax.com
rose@lowensteinweatherwax.com
hsieh@lowensteinweatherwax.com

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hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

Trials@uspto.gov
571-272-7822

Paper 128
Entered: June 2, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORPORATION AND
PATENT QUALITY ASSURANCE, LLC,
Petitioners,*

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229
Patent 7,523,373 B2

Before THOMAS L. GIANNETTI, BRIAN J. MCNAMARA, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

DECISION
Denying Patent Owner's Motion to Terminate

* Intel Corporation, which filed a petition in IPR2022-00479, has been joined as a party to this proceeding. Paper 30.

IPR2021-01229
Patent 7,523,373 B2

I. INTRODUCTION

This proceeding is an *inter partes* review (“IPR”) of claims 1–16 (“the challenged claims”) of U.S. Patent No. 7,523,373 B2 (Ex. 1001, “the ’373 patent”). *See* Paper 10 (instituting review). Although the Petition (Paper 1) was filed on July 7, 2021, by Patent Quality Assurance, LLC, we granted institution of a substantively identical petition filed by Intel Corporation, and granted Intel’s motion for joinder to add Intel as a petitioner in this proceeding. Paper 30 (granting institution in IPR2022-00479 and joining Intel here).

Prior to the July 7, 2021, Petition, litigation between VLSI Technology LLC (“Patent Owner”) and Intel resulted in a March 2, 2021, jury verdict that Intel infringed claims 1, 5, 6, 9, and 11 of the ’373 patent. *VLSI Technology LLC v. Intel Corp.*, 6:21-cv-57 (W.D. Tex.), Ex. 1031, 2. Invalidity of the ’373 patent was not presented to the jury. *See generally id.* On May 10, 2022, the district court entered final judgment including that Intel had not proven invalidity. Ex. 1515. Based on the district court’s final judgment, Patent Owner asserts that claim preclusion bars Intel from challenging the claims of the ’373 patent in this IPR. Patent Owner therefore seeks termination of the IPR as to Intel. *See* Patent Owner’s Motion to Terminate Based on Res Judicata, Paper 91, 1–2 (“PO Mtn. Terminate”; public version).

Patent Owner argues that the elements of claim preclusion are met because 1) “Intel and VLSI are parties to both cases;” 2) “the district court entered a final judgment of infringement, no invalidity,” and Intel did not appeal invalidity; and 3) “the effect of Intel’s challenge is to collaterally attack the First Case’s Final Judgment.” *Id.* at 11–14. Patent Owner contends that claim preclusion applies also to claims 1 and 21, which were not at issue before the district court. *Id.* at 14–15.

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Intel responds that claim preclusion does not apply to IPRs under the America Invents Act (AIA). *See* Petitioner Intel Corp.’s Opposition, Paper 97, 4–6 (“Intel Opp. Mtn. Terminate”). Intel argues also that IPRs and district-court proceedings do not involve “the same claim or cause of action” because they do not both involve the same accused product and because they present different standards of proof. *Id.* at 6–7. We agree with Intel that estoppel does not apply and therefore we deny the motion. Our reasoning follows.

II. ANALYSIS

A. LEGAL STANDARD

Claim preclusion prevents relitigating issues that were or could have been raised during a first action resulting in a final judgment, when a second action involves the same claim as the first. *Lucky Brand Dungarees v. Marcel Fashions Grp.*, 140 S. Ct. 1589, 1594 (2020). A claim, or cause of action, is considered to be “the same” when it “aris[es] from the same transaction” or “involve[s] a common nucleus of operative facts.” *Id.* at 1595 (internal citations omitted). Preclusion operates to prevent a defendant in a first action from raising an issue in a second action “only if (1) the claim or defense asserted in the second action was a compulsory counterclaim that the defendant failed to assert in the first action, or (2) the claim or defense represents what is essentially a collateral attack on the first judgment.” *Nasalok Coating Corp. v. Nylok Corp.*, 522 F.3d 1320, 1323–24 (Fed. Cir. 2008). Patent Owner does not contend that the invalidity grounds here were a compulsory counterclaim in the district court; instead, it asserts that this IPR is a collateral attack on the infringement verdict. PO Mtn. Terminate 3–9.

As an initial matter, the parties dispute what standard we should apply in determining whether claim preclusion applies here. Intel contends that we should determine whether, in passing the AIA, Congress demonstrated its intent that claim

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preclusion not apply to IPRs. Intel Opp. Mtn. Terminate 4 (citing *Astoria Federal Sav. & Loan Ass’n v. Solimino*, 501 U.S. 104, 108 (1991)). Intel argues that “[t]he AIA specifically identifies the circumstances under which IPRs should be barred by parallel district court cases, and common-law claim preclusion is not one of those circumstances.” *Id.* Patent Owner, on the other hand, asserts that *Astoria*’s “lenient” rule—that a “clear statement” is unnecessary to abrogate common law preclusion—applies only in the context of whether an *agency* decision precludes a later *court* decision. Paper 98 (“PO Reply Mtn. Terminate”), 2. According to Patent Owner, for this case, where the court decision preceded the agency decision, we must follow “the usual rule” of preclusion by judicial decisions, which requires Congress’ “plainly stated” intention to overcome preclusion. *Id.* at 2–3 (citing *Kremer v. Chem. Constr. Corp.*, 456 U.S. 461, 485 (1982)).

Patent Owner misreads the case law. *Kremer* considered whether one *statute* may supersede the preclusion required by an earlier *statute*. *Kremer*, 456 U.S. at 463 (“The principal question presented by this case is whether Congress intended Title VII [of the Civil Rights Act of 1964] to supersede the principles of comity and repose embodied in [28 U.S.C.] § 1738.”). The *Kremer* Court noted that recognizing an exception to § 1738 would require either express or implied repeal of that statute, and recognized “a cardinal principle of statutory construction that repeals by implication are not favored.” *Id.* at 468 (quoting *Radzanower v. Touche Ross & Co.*, 426 U.S. 148, 154 (1976)). Thus, with no express repeal, the Court followed the rule that implied repeal requires either irreconcilable conflict or “clear and manifest” intent to repeal the earlier statute. *Id.* (quoting *Radzanower*, 426 U.S. at 154).

More pertinent to this case is the holding in *Astoria*. In *Astoria*, the Court considered whether departing from common-law preclusion rules also required a

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“clear statement” of Congressional intent. *Astoria*, 501 U.S., at 108–09. It reasoned first that well-established common-law principles like preclusion impose a presumption that they apply. *Id.* at 108. The Court went on to explain that “[t]his interpretative presumption is not, however, one that entails a requirement of clear statement, to the effect that Congress must state precisely any intention to overcome the presumption's application to a given statutory scheme.” *Id.* The Court made it clear that such a heightened requirement applies in only limited circumstances, such as constitutional values or overlapping statutes. *See id.* at 108–09. Thus, the Court maintained the presumption of preclusion only to the extent “Congress has failed expressly or impliedly to evince any intention on the issue.” *Id.* at 109–10.

We recognize that *Astoria* involved potential preclusion of a court action by a prior administrative decision, the opposite of the relationship presented here. *See* PO Reply Mtn. Terminate 2. But *Astoria*’s rejection of the “clear statement” requirement to demonstrate Congressional intent did not focus solely on that aspect—the Court determined that there was no statutory conflict with § 1738. *Id.* at 109. Here, like *Astoria*, there is no statutory conflict at issue. Therefore, we conclude that the *Astoria* standard should apply, and the question becomes whether the passing of the AIA with its statutory estoppel provisions demonstrated Congress’ intent that common-law claim preclusion should not apply to IPRs.

B. AIA ESTOPPEL

The AIA’s estoppel provisions are codified in 35 U.S.C. § 315(e). That section applies claim preclusion to petitioners after an IPR final written decision and prohibits a petitioner from “request[ing] or maintain[ing] a proceeding before the Office” or asserting in district court or the ITC that a claim is invalid “on any ground that the petitioner raised or reasonably could have raised” during the IPR.

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§ 315(e). Section 315(e) applies to future proceedings in both the Office and a district court. *Id.* If common-law preclusion applied after IPR proceedings, there would be no need for the § 315(e) estoppel provisions, because the principle Patent Owner now asserts—claim preclusion—would prohibit a petitioner from raising arguments in a district court after a final written decision that it could have made during the IPR proceeding. Thus, the AIA expressly imposes claim preclusion in one direction—from an IPR to other proceedings—but not in the other direction—from district-court litigation to Office proceedings.

C. CONGRESSIONAL INTENT

Petitioner submits that “applying common-law claim preclusion principles would be contrary to Congress’ intent as evidenced by the statutory scheme established for patents.” Intel Opp. Mtn. Terminate 3. Patent Owner counters that the AIA did not “abrogate[] common-law claim preclusion by Article-III district-court judgments upon IPRs.” *See* PO Reply Mtn. Terminate 1 (emphasis omitted). With the AIA, Congress intended “to create a timely, cost-effective alternative to litigation.” 77 F. Reg. 48680–01 (Aug. 14, 2012); *see also* *Cuozzo*, 579 U.S. at 278 (citing legislative history). Despite that potential, the AIA does not require that district courts stay litigation pending Office review. Thus, the AIA inherently accepts the reality that parallel proceedings in a district court and the Office may address overlapping issues relating to asserted invalidity or unpatentability.

Further, the AIA imposes a lower burden of proof for IPRs, in which unpatentability must be shown by a preponderance of the evidence rather than the clear and convincing evidence required for district-court invalidity. *Compare* § 316(e) (applying the preponderance standard to IPRs), *with* § 282(a) (applying a presumption of validity to issued patents), *and* *Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91 (2011) (holding § 282 requires proving invalidity by clear and

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convincing evidence). Although some courts have held that different evidentiary burdens do not overcome claim preclusion if applicable (*see* PO Reply Mtn. Terminate 4), the difference between IPRs and district-court invalidity provides context to Congress adopting claim preclusion in only one direction.² To be clear, we do not rely on the different evidentiary burdens as itself a reason not to apply claim preclusion, but rather as evidence regarding Congress’ intent.

Congress’ adoption of unidirectional preclusion (*see supra*) is significant and distinguishes AIA proceedings like this case from other PTO proceedings also providing for statutory preclusion. The AIA contrasts with the predecessor statute defining *inter partes* reexamination. That statute included former 35 U.S.C. § 317, which included a “two-way” claim preclusion. In addition to an estoppel running against the unsuccessful requester (§ 315(c)), the statute provided that a final decision “against a party in a civil action . . . that the party has not sustained its burden of proving the invalidity of any patent claim in a suit” precluded the party from requesting or maintaining *inter partes* reexamination of such claims on any basis the party “raised or could have raised.” *See* Pub. L. 106–113, Appendix I, 113 Stat. 1501A-570 (pre-AIA § 317). When Congress replaced *inter partes* reexamination with *inter partes* review, it did not maintain the prior statute’s express claim preclusion against an unsuccessful party in litigation.

According to Patent Owner, the AIA adds only “enhanced estoppels” and in no way reduces estoppels that are imposed by the common law. PO Reply Mtn.

² The Supreme Court has noted the differing evidentiary burdens present an inherent possibility of inconsistent results. *Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 282 (2016) (“As we have explained above, *inter partes* review imposes a different burden of proof on the challenger. These different evidentiary burdens mean that the possibility of inconsistent results is inherent to Congress’ regulatory design.”).

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Terminate 3 (quoting 157 Cong. Rec. S5429 (daily ed. Sept. 9, 2011)). Those enhanced estoppels provided by the AIA relate to prohibitions that limit litigation arguments after an IPR. *See* 157 Cong. Rec. S5429 (noting that the “enhanced estoppels” justify extending the IPR filing deadline from six months to one year after a petitioner is sued for infringement). Thus, they directly bear on the types of restrictions imposed by common-law claim preclusion. In other words, the “enhanced estoppels” overlap with common-law preclusion and therefore signal which common-law aspects Congress intended for the AIA.

In Patent Owner’s view, the Federal Circuit has determined that “common law estoppel” applies to *inter partes* reexamination, which included statutory estoppel “more muscular than common law collateral estoppel.” PO Reply Mtn. Terminate 3 (quoting *SynQor, Inc. v. Vicor Corp.*, 988 F.3d 1341, 1347–48 (Fed. Cir. 2021)). The court in *SynQor* noted that the statutes at issue, as noted above, codified common-law claim preclusion. *SynQor*, 988 F.3d at 1348. It held that the statutory issue preclusion, while expressly directed at district-court proceedings, applied also to future reexamination proceedings. *Id.*

We do not find Patent Owner’s arguments persuasive. The issue here is different from that in *SynQor*. First, this proceeding involves claim preclusion, not issue preclusion. *SynQor*, 988 F.3d at 1347. Second, that case considered the scope of a particular preclusion, not whether to recognize preclusion operating in an entirely different direction. *Id.* Patent Owner here seeks a more fundamental departure from the statute’s express provisions. We conclude that the statute’s express estoppel provisions, in light of the difference in evidentiary burdens, show that Congress intended that claim preclusion not restrict IPR petitioners.

Beyond the estoppel provisions discussed, § 315, “Relation to other proceedings or actions,” imposes other limitations on IPR proceedings. It bars

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institution based on a petitioner having “filed a civil action challenging the validity of a claim of the patent” before filing its petition for IPR (§ 315(a)(1)³) or one filing “more than 1 year after” being served with a complaint alleging infringement of the patent” (§ 315(b)⁴). Section 315’s institution restrictions indicate that Congress spoke to how district-court proceedings may limit the Office. And by not including claim preclusion from decisions in those proceedings, Congress further signaled its intent that such claim preclusion not apply to IPRs.

D. SUMMARY

Because the AIA’s predecessor statute expressly included claim preclusion arising from district-court final decisions, while the AIA provisions governing IPRs include claim preclusion operating only in the other direction, passage of the estoppel provision of the AIA expresses Congress’ intent that claim preclusion not apply in the circumstances here. As a result, Patent Owner’s motion for termination is not persuasive and is denied.⁵

III. CONCLUSION

As discussed above, we conclude Patent Owner has not shown that common-law claim preclusion applies to this proceeding such that we should terminate as to petitioner Intel. We therefore deny Patent Owner’s Motion to Terminate as to Intel.

³ A “civil action challenging the validity” does not include an invalidity counterclaim. § 315(a)(3).

⁴ The one-year later bar does not apply in cases of joinder. § 315(b).

⁵ We do not reach Petitioner’s arguments that the motion was untimely, that patent claims not at issue in the district court would not be subject to claim preclusion, or that this IPR does not concern the same “claim” that could have been raised in the district court. Intel Opp. Mtn. Terminate 2–3, 6–9, 13–14.

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IV. ORDER

It is:

ORDERED that Patent Owner's Motion to Terminate as to Intel is denied.

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PETITIONER:

Benjamin S. Fernandez
David L. Cavanaugh
Steven J. Horn
Dominic E. Massa
WILMER CUTLER PICKERING HALE AND DORR, LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
steven.horn@wilmerhale.com
dominic.massa@wilmerhale.com

Bruce W. Slayden II
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

PATENT OWNER:

Baback Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Edward Hsieh
Parham Hendifar
Patrick Maloney
Jason C. Linger
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
smith@lowensteinweatherwax.com
rose@lowensteinweatherwax.com
hsieh@lowensteinweatherwax.com

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hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

Trials@uspto.gov
571.272.7822

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PATENT QUALITY ASSURANCE, LLC, and
INTEL CORPORATION,
Petitioner,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229*
Patent 7,523,373 B2

Before THOMAS L. GIANNETTI, BRIAN J. MCNAMARA, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

* Intel Corporation, which filed a petition in IPR2022-00479, has been joined as a party to this proceeding.

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I. INTRODUCTION

Patent Quality Assurance, LLC (“PQA”) filed a Petition (Paper 1, “Pet.”) requesting institution of *inter partes* review of claims 1–16 (all claims, or “the challenged claims”) of U.S. Patent No. 7,523,373 B2 (Ex. 1001, “the ’373 patent”), owned by VLSI Technology LLC (“Patent Owner”).

After preliminary briefing, we instituted review. Paper 10 (“Institution Decision” or “Inst.”). Following institution, Intel Corporation filed a petition for *inter partes* review and a Motion for Joinder in IPR2022-00479, requesting that Intel be joined as a petitioner to this proceeding. IPR2022-00479, Papers 3, 4. We instituted trial in IPR2022-00479, granted the Motion for Joinder, and added Intel as a petitioner here. *Id.*, Paper 13. A copy of that decision was entered into the record of this proceeding. Paper 30. Thus, PQA and Intel are, collectively, “Petitioner” here.

Patent Owner filed a Response (Paper 28 (“PO Resp.”)), Petitioner filed a Reply (Paper 45 (“Pet. Reply”)), and Patent Owner filed a Sur-Reply (Paper 89 (“PO Sur-Reply”)). We held oral argument on October 26, 2022. Paper 126 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b). This is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, we find Petitioner has demonstrated by a preponderance of evidence that the challenged claims are unpatentable.

A. RELATED MATTERS

The parties both identify the following matters related to the ’373 patent: *VLSI Technology LLC v. Intel Corporation*, No. 1:19-cv-00254-ADA (consolidated as 1:19-cv-00977) (W.D. Tex.) (trial concluded with jury

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571.272.7822

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verdict); and *OpenSky Industries, LLC v. VLSI Tech. LLC*, IPR2021-01056. Pet. 75; Paper 4.

Patent Owner identifies the following additional matters: *VLSI Tech. LLC v. Intel Corp.*, No. 6:21-cv-00057 (W.D. Tex.); *VLSI Tech. LLC v. Intel Corp.*, No. 6:21-cv-00299 (W.D. Tex.); and *Intel Corp. v. VLSI Tech. LLC*, IPR2020-00158 (PTAB) (on appeal to Federal Circuit, No. 21-1616). Paper 4.

B. REAL PARTIES IN INTEREST

Petitioner PQA identifies only itself as the real party in interest. Pet. 75. Petitioner Intel also identifies only itself as the real party in interest. IPR2022-00479, Paper 3, 1. Patent Owner identifies VLSI Technology LLC and CF VLSI Holdings LLC as real parties in interest. Paper 4.

C. THE '373 PATENT

The '373 patent is titled Minimum Memory Operating Voltage Technique. Ex. 1001, code (54). It describes a method of determining the minimum operating voltage for integrated-circuit memory, storing the value of that voltage in nonvolatile memory, and using the value to determine when an alternative power-supply voltage may be switched to the memory or ensuring that the minimum operating voltage is otherwise met. *Id.*, code (57).

The '373 patent's Figure 1 is reproduced below. *Id.*, Fig. 1.

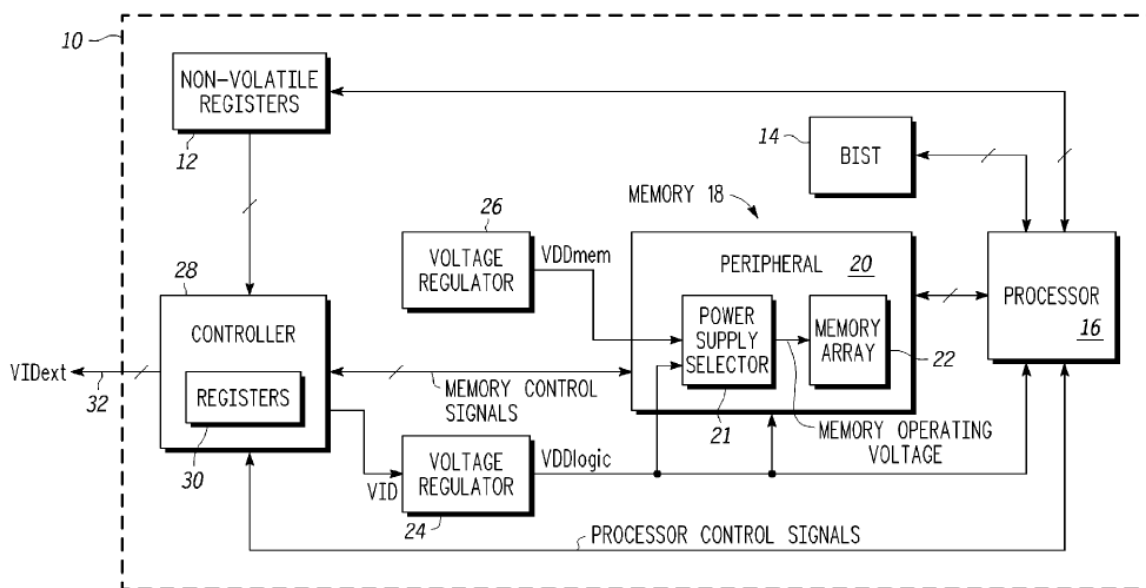
**FIG. 1**

Figure 1 depicts data processing system 10 including processor 16, voltage regulators 24 and 26, and memory 18 that includes power supply selector 21. *Id.* at 2:38–57. The system may adjust voltage regulator 24 such that “VDDlogic is scalable.” *Id.* at 3:23–27; *see also id.* at 5:61–67 (“VDDmem may also be scalable”). Power supply selector 21 “selects one of VDDmem and VDDlogic and provides one of these to memory array 22 as the memory operating voltage.” *Id.* at 2:52–55.

The ’373 patent describes that various thresholds may be used for switching the memory’s operating voltage from VDDlogic to VDDmem and that additional voltages may be provided to the memory using an additional voltage regulator. *Id.* at 3:54–67. For example, power supply selector 21 may switch the memory’s power supply based on the minimum memory operating voltage required for reads, the minimum operating voltage required for writes, the minimum data retention voltage, or variations of those that depend on the memory’s operating condition. *Id.* at 3:30–5:40.

The patent describes built-in test (BIST) circuitry 14, which may be used to determine the various minimum operating voltages, which are then stored in nonvolatile memory. *Id.* at 2:40–41, 6:22–46; *see also id.* at 6:47–8:15.

D. CHALLENGED CLAIMS

Challenged claim 1 is reproduced below:

1. A method, comprising:

- [a] providing an integrated circuit with a memory;
- [b] operating the memory with an operating voltage;
- [c] determining a value of a minimum operating voltage of the memory;
- [d.1] providing a non-volatile memory (NVM) location;
- [d.2] storing the value of the minimum operating voltage of the memory in the NVM location;
- [e] providing a functional circuit on the integrated circuit exclusive of the memory;
- [f] providing a first regulated voltage to the functional circuit;
- [g] providing a second regulated voltage, the second regulated voltage is greater than the first regulated voltage;
- [h] providing the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the value of the minimum operating voltage; and
- [i] providing the second regulated voltage as the operating voltage of the memory when the first regulated voltage is less than the value of the minimum operating voltage;
- [j] wherein while the second regulated voltage is provided as the operating voltage of the memory, the first regulated voltage is provided to the functional circuit.

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571.272.7822

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Ex. 1001, 13:7–28.¹ Claims 9 and 16 are independent and recite limitations similar to claim 1’s. *Id.* at 13:59–14:15, 14:40–62. Claims 2–8 each depend from claim 1; claims 10–15 depend, directly or indirectly, from claim 9. *Id.* at 13:29–14:39.

E. PRIOR ART AND ASSERTED GROUNDS

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	References/Basis
1–7, 9–11, 13–16	103	Harris, ² Abadeer, ³ Zhang ⁴
2, 11, 12	103	Harris, Abadeer, Zhang, Cornwell ⁵
8	103	Harris, Abadeer, Zhang, Bilak ⁶

Pet. 2. Petitioner relies also on the Declarations of Adit Singh, Ph.D. (Ex. 1002; Ex. 1040) and the Declaration of Sylvia D. Hall-Ellis, Ph.D. (Ex. 1027).

II. ANALYSIS

A. CLAIM CONSTRUCTION

Petitioner contends that no claim requires construction other than claim 14, which recites a “means for providing the operating voltage to the memory at a value at least as great as the minimum operating voltage in response to the operating value selected by the processor being below the

¹ Our bracketed designations for limitations largely follow those used by the parties. *See* Pet. 25–46.

² US 5,867,719, issued Feb. 2, 1999 (Ex. 1003).

³ US 2006/0259840 A1, published Nov. 16, 2006 (Ex. 1004).

⁴ US 2003/0122429 A1, published July 3, 2003 (Ex. 1005).

⁵ US 7,702,935 B2, issued Apr. 20, 2010 (Ex. 1006).

⁶ US 2005/0188230 A1, published Aug. 25, 2005 (Ex. 1007).

minimum operating voltage.” Pet. 24, 64; Ex. 1001, 14:31–37. Petitioner points out that a district court construed the term as a means-plus-function term under 35 U.S.C. § 112, sixth paragraph, with the claimed function and a corresponding structure of the “power supply selector.” *Id.* at 64 (quoting Ex. 1028, 2). Patent Owner does not challenge or otherwise address that construction, and we apply it in this decision.

B. UNPATENTABILITY OVER HARRIS, ABADEER, AND ZHANG

Petitioner submits that claim 1 would have been obvious over Harris, Abadeer, and Zhang. Pet. 25–46. Petitioner relies on Harris for a system with switchable voltages provided to memory and other systems in an integrated circuit. *Id.*

Harris discloses a system for permitting “soft defect detection testing (SDDT)” of a memory array in a data processor. Ex. 1003, code (57). Harris’s Figure 1 is reproduced below. *Id.*, Fig. 1.

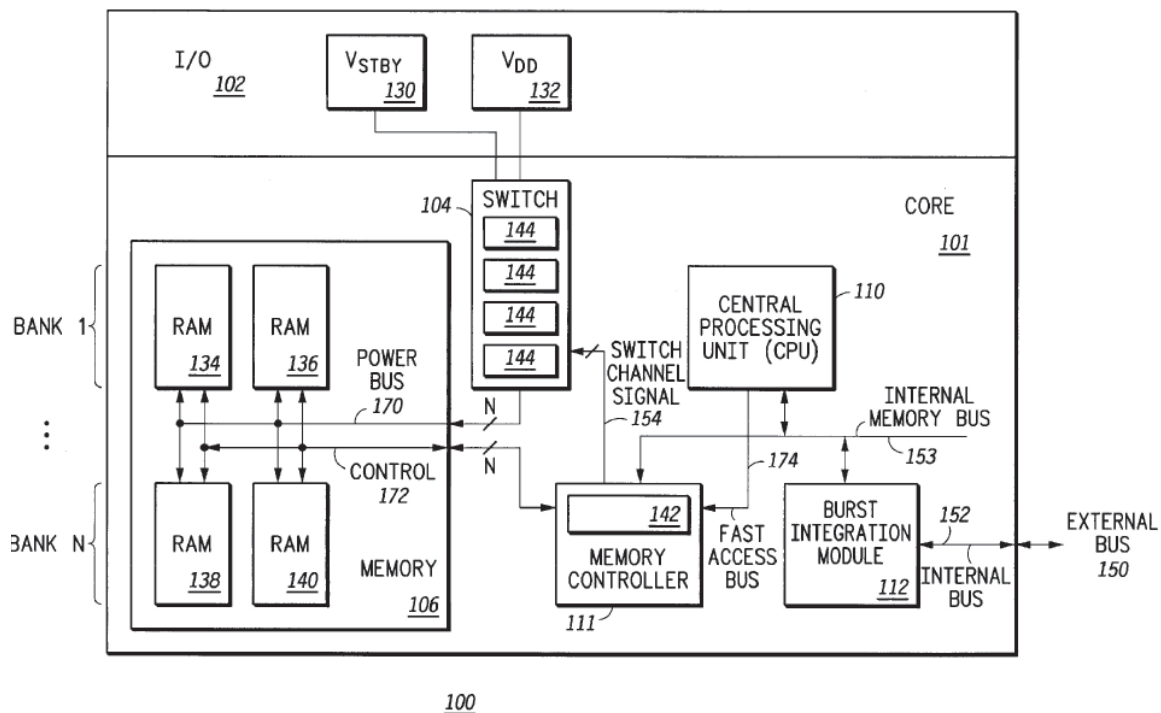
**FIG. 1**

Figure 1 depicts data processor 100 with core 101 including memory portion 106 and switch circuit 104 with a plurality of switches 144 that couple two power-supply terminals in I/O section 102, V_{stby} 130 and V_{DD} 132, to power bus 170 providing power to memory portion 106. *Id.* at 2:27–67.

Harris states that, “[i]n a normal mode of operation, the core 101 would be powered by a supply voltage applied to V_{DD} terminal 132.” *Id.* at 3:1–2. It then describes the SDDT operation, in which CPU 110 writes to register 142 in memory controller 111, causing switch 104 to power a portion of memory 106 from the V_{stby} terminal rather than the V_{DD} terminal. *Id.* at 3:10–36. When so powered, an external circuit that applies power to the V_{stby} terminal may measure the current drawn by the portion

of memory powered by Vstby, detecting whether that portion has a defect.
Id. at 3:36–49.

Harris describes that “the Vstby pin has a hardware controlled function as well,” which is “the normal standby voltage function of the Vstby pin.” *Id.* at 3:50–54. The parties refer to this as Harris’s failure mode. For the failure-mode function, “the voltage level on the terminal VDD 132 is monitored to ensure that a functional voltage is provided.” *Id.* at 3:54–56. “When this VDD voltage level drops below a set level or threshold, the voltage on the Vstby terminal 132 is switched to power the memory 106 to sustain memory contents when either main or VDD power is failing.” *Id.* at 3:57–60. Thus, the memory contents are preserved by switching the memory to a power supply of sufficient voltage (Vstby) when the main supply (VDD) drops below the threshold level.

Harris further describes a low-power feature:

[T]he test mode of the data processor . . . taught herein may be used as a low power feature wherein the second power supply voltage (Vstby or Vdd) is provided to the at least one memory array while the first power supply voltage (Vdd or Vstby) which is being supplied to the CPU is lowered so that lower power is consumed in the data processor while data within the at least one memory array is maintained.

Id. at 4:64–5:4.

Petitioner asserts that Abadeer discloses determining a memory’s minimum operating voltage and storing that voltage’s value in nonvolatile memory. Pet. 15–19, 27–30. Abadeer discloses “[a] solution for determining minimum operating voltages due to performance/power requirements.” Ex. 1004, code (57). It states that its method applies to determining a minimum operating voltage for a “voltage island,” in an integrated circuit,

such as a memory array. *Id.* ¶ 12. By that method, Abadeer aims to reduce power consumption in semiconductor circuits. *Id.* ¶ 13. Once a minimum operating voltage is determined in Abadeer, it is stored in nonvolatile memory. *Id.* ¶¶ 44–45.

Petitioner submits that skilled artisans had reason to use those teachings from Abadeer with Harris’s system because (1) Harris teaches memory loss may occur below a threshold voltage and switching power supplies to prevent such losses, but does not teach how to determine that threshold; (2) Abadeer teaches a method for determining a memory’s minimum operating threshold; (3) both Harris and Abadeer teach reducing a circuit’s power consumption while maintaining a threshold voltage for memory in the circuit; and (4) Harris’s and Abadeer’s teachings are compatible, and Abadeer’s technique would have predictably applied to Harris’s system. *Id.* at 30–33.

Petitioner asserts that Zhang discloses voltage regulators applicable to Harris’s system. Pet. 19–21, 36. Zhang discloses a system including “one or more integrated voltage regulators powered by an external voltage regulator and generating one or more local supply voltages for [a] processor.” Ex. 1005, code (57); *see also id.* ¶¶ 18–31.

Petitioner submits that skilled artisans would have had reason to use Zhang’s voltage regulators to supply the voltages for Harris’s circuit. Pet. 35–40. Petitioner asserts that skilled artisans would have done so to (1) provide stable, precise supply voltages to Harris’s system; (2) decrease power consumption when implementing Harris’s low-power feature by making the supply voltages adjustable; and (3) predictably gain Zhang’s benefits of adjustable supply voltages in Harris’s system. *Id.* at 37–39.

1. Harris's three operational modes are compatible with Abadeer

Patent Owner contends that Harris describes a circuit that could not accommodate Abadeer's "minimum operating voltage" as a threshold for switching power supplies. PO Resp. 3–14. Patent Owner argues that the Institution Decision established that Harris's "'low power feature' must be compatible with the 'failure mode.'" *Id.* at 11 (citing Inst. 21); *accord id.* at 3–4. That misinterprets the Institution Decision, which stated that Harris's "three operating modes (SDDT, power failure, and low power) all arise from and relate to the same underlying hardware system." Inst. 21. That statement does not require all three modes be available in a particular implementation, only that all three use the same hardware system.

This distinction is particularly significant because Harris describes that its low-power feature is realized by using "the test mode." Ex. 1003, 4:64–65. The test mode uses a software-selected switch that allows the CPU to write to a register to control which power supply is provided to the memory. *Id.* at 3:9–18, 3:50–51. Thus, Harris describes that the low-power feature uses a software-defined switching threshold, and nothing about that threshold requires that it be the same as the threshold used for the failure mode. The failure mode, in contrast, is "a hardware controlled function" that monitors the voltage on the VDD terminal, and when that voltage "drops below a set level or threshold, the voltage on the Vstby terminal 132 is switched to power the memory 105 to sustain memory contents when either main or VDD power is failing." *Id.* at 3:52–60.

Accordingly, we do not agree with Patent Owner that "Harris's system cannot use a threshold [for its low-power feature] lower than the power-failure detection threshold." PO Resp. 11–12 (emphasis omitted). The

two aspects use different mechanisms to control which power supply is provided to the memory. Relatedly, Patent Owner asserts that Petitioner fails to justify “why a POSITA would have been motivated to abandon the ‘failure mode’ in favor of pursuing the specific ‘low power feature.’” *Id.* at 14. Because Harris’s failure mode and low-power feature are distinct aspects of Harris’s operation, however, there would have been no need for skilled artisans to abandon one in favor of the other. In that regard, we credit Dr. Singh’s testimony that because Harris’s circuitry can be used for multiple functions, skilled artisans would have understood “how the operation of the circuitry would have been configured differently for those different functions or operations.” Ex. 1040 ¶ 9.

Patent Owner argues additionally that, even if the low-power feature is distinct from the failure mode, Petitioner has not justified using the failure mode’s “set level or threshold” with a different threshold for the low-power feature. PO Resp. 13–14. But that argument ignores that the low-power feature uses software to control the switch, rather than the hardware-controlled failure mode, as described above. Because the low-power feature and failure mode are based on different controlling mechanisms, Harris already describes using different thresholds for switching the memory’s power supply in the two instances. And as Dr. Singh testifies, achieving the desired power savings or low-power operating parameters would have motivated skilled artisans to select a specific minimum operating voltage for the low-power feature. Ex. 1040 ¶ 9.

2. *A failing voltage is not “regulated”*

Patent Owner argues that, when Harris’s failure mode is triggered such that the system switches the memory’s power supply from VDD to

Vstby, the system would no longer provide the first regulated voltage (VDD) to the functional circuit (i.e., Harris’s CPU) while providing Vstby to the memory. PO Resp. 14–17. We agree and do not rely on Harris’s failure mode for unpatentability.

3. Harris’s use of “while” is consistent with the claim language requiring switching “when” voltage drops

The claim language requires providing the memory with the first regulated voltage when it is at least the memory’s minimum operating voltage, and providing the memory with the second regulated voltage when the first voltage is less than the memory’s minimum operating voltage. Patent Owner summarizes that as “the voltage received by the memory is dictated by” the first regulated voltage. PO Resp. 17. Patent Owner argues that Harris’s low-power feature does not follow that relationship because it discloses providing the memory with the second voltage “while the first power supply voltage . . . is lowered.” *Id.* at 18 (quoting Ex. 1003, 4:65–5:4); *accord id.* (“Harris’s memory is already receiving the second voltage ‘*while*’ the first voltage is being lowered.”).

We do not agree. Primarily, Harris’s description of the low-power feature does not restrict the feature to a particular timing for switching the memory’s power supply. Instead, Harris uses “while” as a term of contrast—the memory receives the second power supply voltage, in contrast to the CPU, which receives the first power supply voltage. Ex. 1003, 4:66–5:2. Although Harris does not limit the low-power feature’s switching methodology, Petitioner explains that because Harris separately describes threshold-based voltage switching (in connection with the failure mode), implementing the claimed threshold-based switching in connection with the

low-power mode would have involved using that known technique to achieve a predictable result (avoiding memory data loss). Pet. 32–33 (citing Ex. 1002 ¶ 76).

We agree, and find that skilled artisans would have had reason to and would have known how to implement Harris’s low-power feature with the threshold-based switching described in Harris’s failure mode.

4. *Skilled artisans had reason to add Zhang’s voltage regulators to Harris’s voltage supplies*

The claim language requires providing a first regulated voltage to the functional circuit (i.e., the CPU), and providing a second regulated voltage that is greater than the first regulated voltage. That second regulated voltage is provided to the memory when the first regulated voltage is less than the memory’s minimum operating voltage.

Petitioner reasons that because Harris discloses lowering the voltage provided to its CPU, skilled artisans would have understood that Harris’s circuit implemented voltage scaling—an adjustable voltage—using a voltage regulator with a controllable output. Pet. 35–36 (citing Ex. 1002 ¶ 81). Petitioner further reasons that skilled artisans would have incorporated Zhang’s teachings for providing a regulated voltage to a functional circuit. *Id.* at 36–40. For the same reasons, Petitioner submits skilled artisans would have been motivated to add Zhang’s voltage regulator to Harris’s Vstby input also. Pet. 42–43.

Petitioner submits that skilled artisans would have incorporated Zhang’s voltage regulators on Harris’s VDD and Vstby inputs “to provide a stable voltage” (Pet. 37 (citing Ex. 1002 ¶ 84)) and “to permit independent voltage control and to manage power in low power operation” (*id.* at 39

(citing Ex. 1002 ¶ 85)). As to managing power in low-power operation, Petitioner points out that Harris discloses that either voltage (VDD or Vstby) may be lowered. *Id.* at 38 (citing Ex. 1003, 4:63–5:4). Petitioner further reasons that using Zhang’s regulators for Harris’s VDD and Vstby inputs would have been nothing more than using Zhang’s known elements in Harris’s known system according to Zhang’s known methods, with predictable results. *Id.* at 39.

Patent Owner challenges whether skilled artisans would have had reason to regulate Harris’s Vstby power supply voltage. PO Resp. 19–32. First, Patent Owner argues that because Zhang discloses adjustable regulators, there would have been no need to use Harris’s switching mechanism to switch power supplies rather than “simply adopting Zhang’s solution” to adjust independent power supplies. *Id.* at 21–24. That argument is inapposite because existence of an alternative approach does not undermine Petitioner’s combination. *Intel Corp. v. Qualcomm Inc.*, No. 2020-2092, 2022 WL 880681, at *4 (Fed. Cir. Mar. 24, 2022) (holding a petitioner is “required to show only that ‘there is something in the prior art as a whole to suggest the *desirability* . . . of making the combination, not whether there is something in the prior art as a whole to suggest that the combination is the *most desirable* combination available.’” (quoting *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (internal quotation omitted))).

Next, Patent Owner argues that Harris’s battery-powered Vstby supply has no need for regulation because a battery already provides a sufficiently stable voltage source. *Id.* at 24–26. Harris states that “[n]ormally, Vstby will be powered from a battery back-up source.”

Ex. 1003, 3:60–61.⁷ While Patent Owner contends we should interpret Harris’s statement to mean Vstby is powered from a battery when not used for Harris’s soft-defect-test functionality (PO Sur-Reply 4), we do not agree. In our view, Harris’s statement supports Petitioner’s view that a battery need not be used in all scenarios, and Vstby could be powered from a non-battery source. *See* Pet. Reply 12 (citing Ex. 1040 ¶ 14). Nothing about Harris’s statement indicates it is drawing a contrast with the test functionality. Further, the sentence continues that Vstby “may or may not be a voltage equal to that supplied by VDD.” Ex. 1003, 3:61–62. That nonlimiting disclosure regarding voltage supports that Vstby could be provided by a source other than a battery. And in such a case, adding a regulator would benefit the power supply’s stability as Petitioner asserts. *See* Pet. 37.

The parties dispute also whether Harris discloses adjusting the voltage of Vstby in addition to VDD. Petitioner relies on Harris’s description of its “low power feature wherein the second power supply voltage (Vstby or Vdd) is provided to the at least one memory array while the first power supply voltage (Vdd or Vstby) which is being supplied to the CPU is lowered.” Ex. 1003, 4:65–5:2. That description indicates that either supply may be provided to the CPU, and either may be provided to the memory. If the system provides power from Vstby to the CPU, then lowering the

⁷ Patent Owner relies also on Dr. Singh’s testimony that Harris’s “standby voltage will be designed to be as robust as possible, including battery backup.” Ex. 2053, 123:4–15. We do not agree that testimony establishes that Harris requires a battery in all implementations. Rather, Harris’s nonlimiting language discussed above is more persuasive that Harris’s battery is a preferred embodiment.

voltage provided to the CPU requires a way to adjust the Vstby voltage. Petitioner reasons that this need for voltage scaling would have motivated skilled artisans to include Zhang's adjustable voltage regulator in Harris's circuit for *both* VDD and Vstby. Pet. 35–36, 38–39, 42; Pet. Reply 10–11, 12, 14. Patent Owner disputes this, arguing that Harris never discloses providing Vstby to the CPU and therefore does not support a need for voltage scaling on Vstby. PO Sur-Reply 5; Tr. 43:8–46:4. Although Patent Owner recognizes that Harris discloses the interchangeability of its power supplies when lowering the CPU's voltage, Patent Owner contends that is a mistake “because the hardware of Harris is not designed for Vstby to power the CPU.” Tr. 45:17–46:4.

Harris twice discloses the interchangeability of its power-supply inputs when discussing the low-power feature. Ex. 1003, 4:66–5:2. And that ability is consistent with Harris's description that “switch control signal 154 is software controlled or software programmable and is used to set a configuration of the switches 144 to control power supply distribution in the data processor 100.” *Id.* at 2:47–52. That description indicates that switch 104 (which contains switches 144) controls power supply distribution in data processor 100 as a whole, not just for memory 106. Harris, however, does not depict the power supply connection from switch 104 to CPU 110, and Figure 2 shows a detailed view of switch 104 that does not include any output for CPU 100. *Id.*, Fig. 2. We read Harris's disclosure of its low-power feature as indicating a flexibility in the design that is consistent with the earlier description that switch 104 controls power supply distribution generally. Because Harris's core functionality does not require power supply interchangeability, there was no need for Harris to detail circuitry capable of

that. But that does not mean Harris’s description of the interchangeability was a mistake.⁸ While the issue is not determinative because we rely on Petitioner’s other arguments that skilled artisans would have included Zhang’s regulator on Vstby, we determine the record supports Petitioner’s view that skilled artisans had reason to make Vstby scalable.

Additionally, Petitioner’s contention that skilled artisans had reason to add Zhang’s regulator to Harris’s Vstby input does not depend on a non-battery Vstby supply. As the Petition contended, using a voltage regulator would provide a stable voltage. Pet. 37. Although Patent Owner argues that a battery already provides a stable voltage (PO Resp. 24–25), a voltage regulator would stabilize the battery’s voltage as it neared discharge. *See* Pet. Reply 12. Dr. Singh’s testimony supports that view, recognizing that Harris’s reference to “a battery back-up source” indicates accompanying circuitry to condition and regulate the battery’s voltage. Ex. 1040 ¶ 13. Stated otherwise, a battery alone does not necessarily provide an optimum power supply, and adding Zhang’s voltage regulator as Petitioner asserts would offer a benefit to Harris’s circuit.

Thus, we agree that skilled artisans had reason to add a voltage regulator to Harris’s Vstby input to ensure a stable voltage for the memory during low-power operation. Patent Owner argues that including such a regulator would cost more in power dissipation than it would extend the battery life (PO Resp. 31–32), but we credit Dr. Singh’s testimony that even

⁸ Harris claims embodiments in which the first power supply voltage (claim 6) and the second power supply voltage (claim 7) may be lowered, supporting that Harris desires voltage scaling for both of its power supplies. Ex. 1003, 5:58–6:5.

with a voltage regulator's non-zero resistance, including the regulator would extend the usable battery life, particularly because the regulator would have been able to boost the battery's voltage at the end of its life. Ex. 1040 ¶ 16.

Patent Owner argues also that using a voltage regulator on Harris's Vstby input would compromise Harris's primary SDDT functionality. PO Resp. 27–30. Petitioner disputes that argument, submitting that the added voltage regulation would still permit detection of elevated current draws. Pet. Reply 12. We credit Dr. Singh's testimony that any higher current draw by the memory would result in higher current draw by the voltage regulator, permitting the testing as Harris intends. Ex. 1040 ¶ 15. Thus, although the added regulator may have an effect on SDDT, the record supports that the regulator would provide a benefit to low-power functionality without undermining SDDT.

Patent Owner argues also that using Zhang's regulators would undermine Harris's principle of operation by requiring design iterations to calibrate the on-chip regulators. PO Resp. 33–34. Harris sought to reduce iterations required during a circuit's design cycle by eliminating on-board test circuitry and providing a way for the circuit to use external test circuitry. Ex. 1003, 1:36–52. Dr. Singh agreed that present approaches to circuit design often require two or three iterations. Ex. 2053, 80:22–24. Patent Owner asserts that testimony shows that adding Zhang's regulators to Harris would undermine the goal of reducing design iterations, but Dr. Singh noted that “power supply specifications” implicating a voltage regulator are only one possible reason for design iterations and that “there are lots of other issues going on.” *Id.* at 80:24–25; *see id.* at 79:17–80:25. We conclude that the record does not show that adding Zhang's voltage regulators would

interfere with Harris's principle of operation. As discussed above, the regulators would not prevent Harris's primary SDDT functionality. Harris's goal of reducing design iterations does not implicate its principle of operation, and even if adding Zhang's regulators would have added rather than reduced design iterations, we do not view it as rising to a level that would undermine the combination. *See Medichem S.A. v. Rolabo S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) ("The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another." (quoting *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000))).

Finally, Patent Owner contends that Zhang's regulators require a stable reference to themselves regulate a voltage. PO Resp. 34–35. Thus, reasons Patent Owner, Harris's circuit would still need a stable, external voltage, eliminating any benefit from adding Zhang's regulators. *Id.* That argument, however, ignores Harris's desire for adjustable voltages. As discussed above, at least Harris's VDD (and in our view Vstby also) must be adjustable for the low-power feature, and Zhang's adjustable regulators provide that functionality.

For the reasons discussed, the record supports that adding Zhang's regulator to Harris's Vstby would provide a benefit, whether or not using a battery for Vstby and whether or not Harris supports scaling Vstby, and that skilled artisans therefore had reason to make the asserted combination, notwithstanding some potential drawbacks.

5. Using Abadeer's nonvolatile storage would not have undermined Harris's principle of operation

Abadeer discloses a “Built-In-Self-Test (BIST) circuit . . . used to determine the correct supply voltage for all elements in a design.” Ex. 1004 ¶ 14. Once Abadeer's circuit uses BIST to determine the minimum operating voltages, those values are “stored in a non-volatile memory (such as fuses).” *Id.* ¶ 45. Petitioner reasons that, in the combination, skilled artisans would have incorporated Abadeer's nonvolatile memory to store minimum operating voltages to reduce the need to run the self-test and speed startup after a power cycle. Pet. 34 (citing Ex. 1002 ¶ 78).

Patent Owner contends that including nonvolatile memory would have disrupted Harris's principle of operation. PO Resp. 36–39. Because Harris uses SRAM, which was a type of memory that was a common alternative to nonvolatile memory, Patent Owner contends Harris “was designed to avoid such [nonvolatile] memory.” *Id.* at 37. In Patent Owner's view, using Abadeer's BIST to determine the minimum operating voltage during each power cycle “would have been preferable.” *Id.* But there is no requirement that an asserted “combination is the *best* option, only that it be a *suitable* option.” *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023). We do not agree with Patent Owner that Harris's principle of operation included avoiding nonvolatile memory. Petitioner provides a persuasive reason that skilled artisans would have used Abadeer's approach for storing determined minimum operating voltages in nonvolatile memory added to Harris's system.

Trials@uspto.gov
571.272.7822

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6. Objective indicia of nonobviousness

Despite Patent Owner not asserting objective indicia of nonobviousness in the Response, Petitioner asserts that the jury verdict of infringement by Intel does not weigh against obviousness. Pet. Reply 23–25. Patent Owner disputes that and contends the jury’s infringement verdict shows commercial success. PO Sur-Reply 19–20; *see* Ex. 1031, 2, 6.

As an initial matter, we determine that Patent Owner waived reliance on secondary considerations by failing to raise them in the Response. *See* Paper 15, 9 (“Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.”); *In re NuVasive, Inc.*, 842 F.3d 1376, 1380–81 (Fed. Cir. 2016); Consolidated Trial Practice Guide 52 (Nov. 2019), *available at* <https://www.uspto.gov/TrialPracticeGuideConsolidated>. Even considering Patent Owner’s purported reliance, however, it is not persuasive.

To establish a nexus between Patent Owner’s alleged commercial success and the ’373 patent’s claims, Patent Owner asserts that the jury was “charged with determining damages based upon the value of the technology captured by the claims.” PO Sur-Reply 20 n.2 (citing Ex. 2021, 1545:13–1546:9).

When the evidence shows that a product includes “the invention disclosed and claimed in the patent,” we presume that any commercial success of the product is due to the patented invention. *PPC Broadband v. Corning Optical Commc’ns*, 815 F.3d 734, 746–747 (Fed. Cir. 2016). Such a presumed nexus requires not only that a commercial product embodies the claims, but also that it is coextensive with them. *See Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (“[P]resuming nexus is

appropriate ‘when the patentee shows that the asserted objective evidence is tied to a specific product and that product embodies the claimed features, and is coextensive with them.’” (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018))).

Petitioner notes that the jury infringement verdict is on appeal. Pet. Reply 23. According to Petitioner, Patent Owner fails to show the verdict demonstrates commercial success with a nexus to the challenged claims. *Id.* at 24. Petitioner argues that the challenged claims were not the basis for customer demand of the accused products. *Id.* (citing Ex. 1044, 811:13–812:24 (Intel employee Adam King testifying that Intel’s customers care about numerous technical attributes, including graphics performance for video editing, camera quality for video conferencing and power efficiency for laptops)). Petitioner notes that Patent Owner accused only the “C6 SRAM multiplexer” feature of infringing the ’373 patent (Ex. 1042, 453:20–25; Ex. 1044, 815:16–816:21) and that Patent Owner’s damages expert, Dr. Sullivan, “conceded that many of the thousands of other features ‘have nothing to do with what [Patent Owner] accuses.’” Pet. Reply 24 (quoting Ex. 1043, 690:19–691:24).

The record before us does not show that Intel’s product or products underlying the infringement verdict are coextensive with “the invention disclosed and claimed.” *See Fox Factory*, 944 F.3d at 1373, 1377; *Facebook, Inc. v. Express Mobile Inc.*, IPR2021-01457, Paper 38 at 76–80 (PTAB Mar. 14, 2023) (concluding an infringement verdict was insufficient to establish nexus). Rather, the record shows that the accused products contained many features beyond those claimed in the ’373 patent. Ex. 1043, 690:19–691:24; Ex. 1044, 815:16–816:21. That evidence persuades us that,

regardless of a presumed nexus, the commercial success does not have a nexus with the challenged claims.

Additionally, other than the jury verdict, Patent Owner has not provided financial information that would allow us to weigh the extent of Intel's infringing sales in the market. In particular, the record does not reflect whether the infringing devices represented an increase in market share over prior, noninfringing devices or any other aspect that would allow us to place the verdict's amount in context. *See, e.g., In re Applied Materials, Inc.*, 692 F.3d 1289, 1300 (Fed. Cir. 2012) ("An important component of the commercial success inquiry in the present case is determining whether Applied had a significant market share."). On this record, even considering the waived issue, we find the evidence of commercial success is weak evidence of non-obviousness.

7. Harris is available as prior art

Patent Owner argues that Harris is nonanalogous art to the '373 patent and therefore cannot be used in an obviousness combination. PO Resp. 39–52. To be analogous art, Harris must be in the same field of endeavor as the '373 patent or be reasonably pertinent to the problem addressed by the '373 patent. *In re Clay*, 966 F.2d 656, 658–59 (Fed. Cir. 1992).

Patent Owner contends that the '373 patent's field of endeavor is a "minimum memory operating voltage technique." PO Resp. 40–41 (citing Ex. 2052 ¶¶ 155–156). With that contention, Patent Owner contrasts Harris's field, which Patent Owner asserts as "soft-defect testing on-chip memory." *Id.* at 43 (citing Ex. 2052 ¶ 157).

Petitioner submits that Patent Owner improperly constrains the '373 patent's field of endeavor. Pet. Reply 16–17. According to Petitioner,

the '373 patent's field is "the design and operation of memories, including voltage supplies to those memories." Pet. Reply 16 (citing Ex. 1040 ¶ 22). Petitioner points out that the '373 patent describes related art as that making "tradeoffs between performance and power" by operating processors "at maximum voltage and frequency when peak performance is required" and "at low voltage and frequency to reduce power consumption" at other times. Pet. Reply 16 (quoting Ex. 1001, 1:12–25). Petitioner compares that to Harris, which "teach[es] circuit design and operation for processors and/or memory to manage power by adjusting voltage levels to components of an IC." Pet. 39–40 (citing Ex. 1003, 4:63–5:4); Pet. Reply 17.

We agree with Petitioner. Both Harris and the '373 patent are in the field of memory power supply. While Harris describes a voltage-supply system allowing for a particular testing approach, its field is not limited to its primary purpose of soft-defect testing on-chip memory. Rather, Harris also describes that its system allows other features such as failure protection and a low-power feature. Ex. 1003, 3:50–67, 5:59–5:4. Thus, we find that Harris's field is memory power supply, and more specifically, switchable memory power supplies.

As discussed, the '373 patent describes its related art as making tradeoffs between performance and power when choosing voltage and frequency for processors and memory. Ex. 1001, 1:12–25. While the '373 patent describes determining the minimum operating voltage for each part and storing that determined value (*id.* at 2:3–37, 6:22–8:15), its disclosures are considerably broader in scope. The patent describes selecting memory voltage based on multiple considerations, such as using the logic voltage when it is higher than the memory minimum operating voltage, or a

variety of minimum voltages depending on operating circumstances. *Id.* at 3:30–5:41. As to the system controlling a memory’s power supply, the ’373 patent describes mechanisms that may be used to control a memory’s power supply, such as power supply selector 21. *Id.* at 2:52–59, 5:42–58. It details operation of the power supply controller 28 and selector 21. *Id.* at 8:33–9:4. The ’373 patent describes alternatively that memory may be permanently coupled to a particular voltage bus that is scaled to provide the desired power. *Id.* at 2:59–61, 5:61–67.

The disclosures regarding mechanisms for controlling the memory power supply show that the ’373 patent’s field is broader than just determining the minimum operating voltage. We find that the ’373 patent’s field includes switchable memory power supplies, supporting that Harris is from the same field as the ’373 patent.

As to whether Harris is reasonably pertinent to the problem addressed by the ’373 patent, Petitioner contends that the ’373 patent addresses “lowering power consumption in integrated circuits, considering that ‘different types of circuitry within a data processing system may have different ranges of allowable operating voltages’ and that ‘the processor may be able to operate at a lower voltage than is possible for the memory.’” Pet. Reply 19 (quoting Ex. 1001, 1:12–25, 2:5–7). Petitioner contends that Harris addresses the same problem with its circuit to “ensure the memory is provided with sufficient voltage to avoid data loss.” Pet. 14–15 (citing Ex. 1003, 3:54–56, 3:64–67 (Harris’s disclosure of switching memory power supply “to avoid memory data loss”)).

Patent Owner’s expert agrees that the ’373 patent addresses “the problem of providing different voltages to different parts of the circuit” to

accommodate different “allowable operating voltages.” PO Resp. 49 (quoting Ex. 2052 ¶ 159). As discussed above, Harris discloses a mechanism for providing different voltages to different parts of its circuit, whether for testing or low-power operation. Ex. 1003, 3:50–67, 5:59–5:4. We find that Harris is reasonably pertinent to the problem of providing different voltages to different parts of the circuit. While the ’373 patent addresses other problems also, that does not undermine the problem to which Harris is reasonably pertinent. *See Ethicon LLC v. Intuitive Surgical, Inc.*, No. 2021-1601, 2022 WL 1576779, at *4 (Fed. Cir. May 19, 2022) (nonprecedential) (holding that the patent owner’s identification of an additional problem beyond that supporting analogous art was irrelevant); *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1361 (Fed. Cir. 2020) (noting the analysis considers “one or more problems to which the claimed invention relates”).

Accordingly, Harris is analogous art to the ’373 patent because it is both from the same field of endeavor and reasonably pertinent to a problem confronting the inventor of the ’373 patent.

8. Abadeer is available as prior art

Patent Owner contends that Abadeer is not available as prior art in an *inter partes* review because section 311(b) of 35 U.S.C. limits *inter partes* reviews to “patents or printed publications,” whereas Abadeer was neither as of the ’373 patent’s filing date. PO Resp. 53–58. In Patent Owner’s view, an *inter partes* review may not consider a reference that, like Abadeer, was published after the challenged patent’s filing date, notwithstanding 35 U.S.C. § 102(e). *Id.* at 55.

Section 311(b) provides that an *inter partes* review may assert “a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.” 35 U.S.C. § 311(b). Pre-AIA section 102(e) provides for unpatentability based on “an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for” the challenged patent. 35 U.S.C. § 102(e)(1) (2006). Petitioner argues that section 311(b) thus applies to art, like Abadeer, that is a printed publication that can be raised under section 102(e). Pet. Reply 19–20.

We agree with Petitioner. The Federal Circuit held in *Purdue Pharma L.P. v. Iancu* that an asserted patent application published on December 12, 2002, *after* the August 6, 2002, effective priority date of a challenged patent, but filed on August 30, 2001, *before* the challenged patent’s effective priority date, nonetheless qualified as prior art that could be used in an *inter partes* review based on its pre-AIA section 102(e) application filing date. *Purdue Pharma*, 767 F. App’x 918, 925 (Fed. Cir. 2019) (nonprecedential). While the court did not consider the specific argument raised here—that *inter partes* reviews categorically may not rely on patent applications published after the challenged patent’s priority date—*Purdue Pharma* signals an endorsement of the ability to use such publications as section 102(e) art in *inter partes* reviews.

According published applications an effective date as of their filing, as defined by section 102(e)(1), is consistent with according patents an effective date as of their filing, as defined by section 102(e)(2). In *Becton, Dickinson & Co. v. Baxter Corp. Englewood*, 998 F.3d 1337 (Fed. Cir. 2021), the Federal Circuit held that section 102(e)(2) applied to a patent

that had been later canceled, making that former patent available as prior art in an *inter partes* review. *Becton, Dickinson*, 998 F.3d at 1345. In its decision, the Federal Circuit noted and rejected the patent owner’s argument that a 102(e)(2) patent could not be considered a prior-art patent before the date it was actually made public, i.e., the date it issued. *Id.* at 1345 n.7. We do not agree with Patent Owner that *Becton, Dickinson* is irrelevant because it concerned an issued patent (PO Sur-Reply 23 n.5). Rather, it supports that *inter partes* reviews properly consider prior-art references with effective dates prior to their actual publication dates.

While Patent Owner argues that section 311’s “patents or printed publications” does not encompass a published patent application that is prior art under section 102(e)(1), we do not agree. *See* PO Resp. 53–57. Patent Owner relies on case law holding that a “printed publication” under sections 102(a) and (b) must be publicly available as of the challenged patent’s priority date, but as noted, Petitioner relies on Abadeer being a printed publication having an effective date determined by its filing date under section 102(e)(1) rather than its publication date. In our view, section 311’s reference generally to section 102 indicates that applicable “printed publications” include published applications under section 102(e)(1).

9. Conclusion regarding claim 1

We have considered the full record, including evidence and arguments presented by Petitioner and Patent Owner on whether Harris, Abadeer, and Zhang teach or suggest claim 1’s limitations, whether there was a reason that skilled artisans at the time would have combined Harris, Abadeer, and Zhang as asserted, and whether objective indicia indicate the claims would

not have been obvious. Based on the full record, we conclude that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over Harris, Abadeer, and Zhang.

10. Additional claims

Petitioner provides contentions for claims 2–7, 9–11, and 13–16, generally relying on its contentions for claim 1, addressing differences in the language of independent claims 9 and 16, and identifying disclosures teaching the limitations of the dependent claims. Pet. 47–67. Other than as discussed above regarding claim 1, Patent Owner does not dispute Petitioner’s contentions. We have reviewed the record, including Patent Owner’s asserted objective indicia of nonobviousness, and determine that Petitioner has shown claims 2–7, 9–11, and 13–16 would have been obvious over Harris, Abadeer, and Zhang for the reasons discussed above, and because Petitioner has shown that the combination teaches all the limitations recited in claims 2–7, 9–11, and 13–16.

C. UNPATENTABILITY OVER HARRIS, ABADEER, ZHANG, AND CORNWELL

For claims 2, 11, and 12, which depend from claim 1 or claim 9, Petitioner relies on its contentions for claims 1 and 9, and further points to Cornwell’s disclosures relevant to the limitations in claims 2, 11, and 12. Pet. 67–72. Other than as discussed above, Patent Owner does not challenge those contentions. We have reviewed Petitioner’s contentions and determine Petitioner has shown claims 2, 11, and 12 would have been obvious over Harris, Abadeer, Zhang, and Cornwell for the reasons discussed above, and because Petitioner has shown that the combination teaches all the limitations recited in claims 2, 11, and 12 and has provided reasoning with a rational

underpinning to explain why a person having ordinary skill in the art at the time of the invention would have combined the references as asserted.

D. UNPATENTABILITY OVER HARRIS, ABADDEER, ZHANG, AND BILAK

For claim 8, which depends from claim 1, Petitioner relies on its contentions for claim 1, and further points to Bilak's disclosures relevant to claim 8's limitations. Pet. 72–74. Other than its arguments for the patentability of claim 1, Patent Owner does not challenge Petitioner's contentions for claim 8 or introduce secondary considerations evidence specific to claim 8. We have reviewed Petitioner's contentions and determine Petitioner has shown claim 8 would have been obvious over Harris, Abadeer, Zhang, and Bilak for the reasons discussed above, and because Petitioner has shown that the combination teaches all the limitations recited in claim 8 and has provided reasoning with a rational underpinning to explain why a person having ordinary skill in the art at the time of the invention would have combined the references as asserted.

E. CONSTITUTIONAL STANDING

Patent Owner argues that an *inter partes* review where the petitioner lacks constitutional injury-in-fact is unconstitutional. PO Resp. 58–62. We agree with Petitioner that Patent Owner's argument contradicts precedent. Pet. Reply 25; *Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 279 (2016) (“Parties that initiate the proceeding need not have a concrete stake in the outcome; indeed, they may lack constitutional standing.”); *Consumer Watchdog v. Wisconsin Alumni Rsch. Found.*, 753 F.3d 1258, 1261 (Fed. Cir. 2014) (“Article III standing is not necessarily a requirement to appear before an administrative agency”). We further agree that, because Intel

Trials@uspto.gov
571.272.7822

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has been joined as a Petitioner, Patent Owner's argument does not apply to this proceeding. Pet. Reply 26.

III. CONCLUSION⁹

For the reasons discussed and based on the entire record, Petitioner has shown by a preponderance of the evidence that claims 1–16 are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–7, 9–11, 13–16	103	Harris, Abadeer, Zhang	1–7, 9–11, 13–16	
2, 11, 12	103	Harris, Abadeer, Zhang, Cornwell	2, 11, 12	
8	103	Harris, Abadeer, Zhang, Bilak	8	
Overall Outcome			1–16	

IV. ORDER

In consideration of the foregoing, it is hereby:

⁹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. §§ 42.8(a)(3), (b)(2).

Trials@uspto.gov
571.272.7822

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ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1–16 of the '373 patent are unpatentable;

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

Trials@uspto.gov
571.272.7822

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PETITIONER:

Bruce Slayden
Brian Banner
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
bbanner@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

Benjamin Fernandez
David Cavanaugh
Steven Horn
Dominic Massa
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
steven.horn@wilmerhale.com
dominic.massa@wilmerhale.com

Trials@uspto.gov
571.272.7822

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PATENT OWNER:

Baback Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Edward Hsieh
Parham Hendifar
Patrick Maloney
Jason C. Linger
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
smith@lowensteinweatherwax.com
rose@lowensteinweatherwax.com
hsieh@lowensteinweatherwax.com
hendifar@lowensteinweatherwax.com
maloney@lowensteinweatherwax.com
linger@lowensteinweatherwax.com

[Director PTABDecision Review@uspto.gov](mailto:Director_PTABDecision_Review@uspto.gov)
571-272-7822

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PUBLIC VERSION

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

IPR2021-01229¹
Patent 7,523,373 B2

Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

DECISION

Determining Failure to Comply with Mandatory Discovery;
Misrepresentation of Fact, and
Misleading Argument; and
Ordering Petitioner Patent Quality Assurance, LLC to Show Cause

¹ Intel Corporation (“Intel”), which filed a Petition in IPR2022-00479, has been joined as a party to this proceeding. Paper 30.

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I previously ordered Petitioner Patent Quality Assurance, LLC (“PQA”) to show cause why it should not be sanctioned for its conduct in this proceeding. Although this decision is on a motion for reconsideration, I consider the issues anew, because I provided PQA with additional briefing to show cause why it should not be sanctioned.

Having considered the issues anew, I determine that PQA’s conduct in this proceeding rises to the level of sanctionable conduct, and hereby give the parties notice that I am contemplating imposing an attorney-fee order or an admonishment as a sanction.

I. PROCEDURAL HISTORY

On January 26, 2022, the Patent Trial and Appeal Board (“PTAB” or “Board”) issued a decision granting institution of an *inter partes* review (“IPR”) of claims 1–16 (“challenged claims”) of U.S. Patent No. 7,523,373 B2 (“the ’373 patent”), based on a Petition filed by PQA. Paper 10 (“Institution Decision”). This Decision on whether to issue sanctions to PQA arises on Director Review of the Decision on Institution in this proceeding. *See generally* Paper 31; Paper 35; Paper 102.²

There is a complex background to this proceeding, some of which provides necessary context for the discovery I ordered in this proceeding and some of which is directly relevant to my finding below that PQA made misleading arguments about the availability of an expert witness.

² Paper 102 is the nonconfidential version of my previous decision on Director Review; Paper 101 is the confidential version.

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A. Jury Verdict in the U.S. District Court for the Western District of Texas

VLSI sued Intel for infringement of the '373 patent in the Waco Division of the United States District Court for the Western District of Texas on April 11, 2019. *VLSI Tech. LLC v. Intel Corp.*, Case No. 1-19-cv-00254-ADA (consolidated as 1-19-cv-00977) (W.D. Tex.).

The trial resulted in a jury verdict finding that Intel infringed claims 1, 5, 6, 9, and 11 of the '373 patent. Ex. 1031, 2–4. The jury awarded VLSI \$1.5 billion in damages for infringement of the '373 patent.³ *Id.* at 6. Intel did not challenge, and the jury did not consider, the validity of the claims of the '373 patent. *See id.*; Paper 10, 6. Intel appealed to the United States Court of Appeals for the Federal Circuit, and that appeal is currently pending as *VLSI Technology LLC v. Intel Corporation*, No. 22-1906 (Fed. Cir. June 15, 2022). Because validity of the '373 patent was not at issue in the jury trial, the appeal will not resolve the unpatentability issues pending before the Board.⁴

³ The jury also found that Intel did not literally infringe U.S. Patent No. 7,725,759 B2 (“the '759 patent”), but did infringe claims 14, 17, 18 and 24 of that patent under the doctrine of equivalents. Ex. 1031, 2–4. The jury further found that Intel had not proven by clear and convincing evidence that claims 14, 17, 18, and 24 of the '759 patent were invalid as anticipated. *Id.* at 5. The jury awarded VLSI \$675 million in damages for Intel’s infringement of the '759 patent, bringing the total damages award to \$2.175 billion. Ex. 1031, 2–4. The '759 patent is the subject of IPR2021-01064.

⁴ As noted in footnote 3 above, the validity of the '759 patent was tried to the same jury.

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B. Intel's Prior Petition

Within one year of being sued for infringement by VLSI and over a year before the trial in the Western District of Texas, Intel filed an IPR petition challenging claims of the '373 patent. IPR2020-00158, Paper 3. Considering the factors set forth in the Board's precedential decision in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("the *Fintiv* factors"), however, the Board exercised discretion to deny institution of the proceeding. IPR2020-00158, Paper 16, 14. In particular, the Board highlighted "the advanced stage of the Western District of Texas litigation, a currently scheduled trial date approximately seven months before the would-be deadline for a final written decision, and the overlap between the issues." *Id.* The Board did not address the merits of the Petition, other than noting "that the merits of the Petition do not outweigh the other *Fintiv* factors." *Id.* Notably, the Board issued this decision prior to the issuance of the June 21, 2022, Director's Memorandum ("Guidance Memo"),⁵ which instructs the PTAB to "consider[] the merits of a petitioner's challenge when determining whether to institute a post-grant proceeding in view of parallel district court litigation" and that "compelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel." Guidance Memo at 4–5.

⁵ Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (USPTO June 21, 2022), *available at* www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

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C. OpenSky's Petition

On June 7, 2021, OpenSky filed a petition for *inter partes* review challenging claims 1–3, 5, 6, 9–11, and 13 of the '373 patent in IPR2021-01056. IPR2021-01056, Paper 2. OpenSky copied extensively from Intel's earlier petition. IPR2021-01056, Ex. 2016 (redline comparison of portions of the petition in IPR2021-01056 with portions of Intel's petition in IPR2020-00158). OpenSky further refiled the declaration of Intel's expert witness, Dr. Adit Singh, which Dr. Singh prepared for Intel in IPR2020-00158, without Dr. Singh's knowledge and without engaging him as a witness for the OpenSky proceeding. *See* IPR2021-01056, Paper 2; Exs. 1002, 2037.⁶ PQA filed its petition in this proceeding one month after OpenSky, and urged that the Board not deny its petition in favor of OpenSky's. *See infra*.

On December 23, 2021, the Board denied OpenSky's petition challenging the claims of the '373 patent. IPR2021-01056, Paper 18. The Board found "no indication that [OpenSky] ever spoke to Dr. Singh or attempted to retain him for this proceeding or secure his availability for cross examination before filing his declaration." *Id.* at 8. Instead, based on PQA's representations, *see infra* §§ I.D, III., the Board found that Dr. Singh

⁶ OpenSky also filed an identical copy of the declaration of Intel's other expert, Dr. Sylvia Hall-Ellis, without change. IPR2021-01056, Paper 17, 9; IPR2021-01056, Ex. 1027. Dr. Hall-Ellis is a librarian who had proffered testimony regarding the prior art status of certain references relied on in Intel's previous petition. *See* IPR2021-01056, Ex. 1027.

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had agreed to work exclusively for PQA in this proceeding, and OpenSky had not provided any factual support that Dr. Singh would be released from his obligation to PQA so that he could be cross-examined about the content of his declaration in the OpenSky proceeding. *Id.* at 9. The Board found that OpenSky “brought forth the testimony of an expert that [OpenSky] likely cannot produce for cross-examination and would likely be excluded.” *Id.* Accordingly, the Board concluded that OpenSky’s petition did not warrant institution. *Id.*

D. PQA’s Petition

On July 7, 2021, PQA filed the Petition for *inter partes* review in this proceeding, challenging claims 1–16 of the ’373 patent. Paper 1 (“Petition” or “Pet.”).⁷ Like OpenSky, PQA copied extensively from Intel’s earlier petition. Ex. 2016 (comparison of portions of the petition in this IPR with portions of Intel’s petition in IPR2020-00158). Again, like OpenSky, PQA refiled Intel’s supporting declaration of Dr. Singh with minor changes. *See* Exs. 1002, 2022.⁸ Unlike OpenSky, however, PQA contacted Dr. Singh prior to filing the Petition and retained Dr. Singh as an expert for this proceeding. *See* Exs. 1034; 2053, 9:5–9. According to Dr. Singh’s declaration in the case, he had been “exclusively retained by Petitioner

⁷ Unless otherwise indicated, Papers enumerated herein refer to Papers filed in IPR2021-01229 and “Petition” or “Pet.” refer to PQA’s Petition in IPR2021-01229.

⁸ PQA also filed a virtually identical copy of the declaration of Intel’s other expert, Dr. Hall-Ellis. Paper 7, 6; Ex. 1027.

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Patent Quality Assurance LLC s:\ [sic] for the duration of th[e] case.”⁹ Ex. 1002, ¶174; *see also* Ex. 1034, 2 (engagement agreement with PQA required that he “***will not accept new consulting engagements related to the Challenged Patent without prior written consent.***” (emphasis in original)). That agreement was executed just three days after OpenSky petitioned for review of the ’373 patent, which relied on Dr. Singh’s nearly identical declaration. *Id.* at 3 (signed June 10, 2021).

In its Petition, PQA argued that the Board should not exercise discretion to deny institution of this proceeding under 35 U.S.C. §§ 314(a) or 325(d). *See* Pet. 2–5. In addressing discretionary denial, PQA argued that:

the integrity of the patent system is at issue, as a jury recently found a well-known U.S. company (Intel Corporation) liable for infringement of the ’373 patent and awarded \$1.5 billion to Patent Owner—one of the top 5 largest infringement damage awards. . . . Because no examiner, court, or other tribunal has evaluated the ’373 patent’s validity in view of the grounds presented herein, review is necessary to instill confidence in the integrity of the patent system and to ensure that innovative U.S. companies (and their consumers) are not unfairly taxed by entities asserting invalid patents.

Id. at 2–3.

⁹ Even though PQA essentially copied verbatim Dr. Singh’s declaration from the Intel IPR, PQA made a point of adding this one sentence to his declaration including this typo. *Compare* Ex. 1002 ¶ 174 *with* IPR2020-00158, Ex. 1002 ¶ 17; *see also* Ex. 2022 (side-by-side comparison of substance of Singh declarations in Intel and PQA cases).

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As to OpenSky's earlier-filed petition, PQA asserted that PQA "exclusively engaged Dr. Singh and Dr. Hall-Ellis to challenge the '373 patent. Thus, OpenSky cannot present either expert for cross-examination as required." *Id.* at 4 (emphasis in original). PQA thus argued that the Board should not discretionarily deny its Petition in favor of OpenSky's defective petition, and that "OpenSky must either dismiss its petition to refile with a new expert or risk exclusion of its expert declaration as mere hearsay." *See id.* at 4–5.

In this proceeding, the Board reviewed the evidence and arguments in the Petition, Patent Owner Preliminary Response, Preliminary Reply, and Preliminary Sur-reply, and instituted the requested IPR on January 26, 2022. Institution Decision 24. Specifically, the Board found that the *Fintiv* factors did not weigh in favor of discretionary denial in large part because neither the Board in Intel's IPRs nor the district court jury trial considered the merits of the unpatentability issues presented in this proceeding. *Id.* at 6–7.

On February 8, 2022, VLSI sought to challenge the Institution Decision, filing requests for rehearing and for review by the Precedential Opinion Panel ("POP"). Paper 13. In the rehearing request, VLSI argued that "[t]he Board should not permit entities formed after the verdict and facing no infringement threat to treat these proceedings as leverage to extract ransom payments in exchange for withdrawing abusive attacks." *Id.* at 1, 6–8. VLSI argued that such a proceeding advances no valid public interest and "fail[s] to weigh the overarching interests of fairness to the parties and the integrity of the patent system." *Id.* at 1–2, 9–10.

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E. Intel's Motion for Joinder

Within one month of the Board's institution of this proceeding, Intel timely filed its own second petition for IPR with a Motion for Joinder to this proceeding. Paper 30; IPR2022-00479, Papers 3 and 4. The Board joined Intel to this proceeding on June 6, 2022, determining that Intel's petition warranted institution and declining to discretionarily deny institution under 35 U.S.C. §§ 314(a) and 325(d). Paper 30. In considering discretionary denial, the Board determined that:

[a]lthough Petitioner has directed this Petition to the same claims and relies on the same art as in its first petition, that the Board did not substantively address the merits of the prior Intel petition, in our view, weighs against discretionary denial here. The district-court trial that led to the denial of its initial petitions is over and did not resolve the challenges presented here. Allowing Petitioner the opportunity to pursue a decision on the merits from the Board at this time—by joining PQA's substantially identical petition—best balances the desires to improve patent quality and patent-system efficiency against the potential for abuse of the review process by repeated attacks on patents.

Id. at 9–10 (citing *General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357 et al., Paper 19 (PTAB Sept. 6, 2017) at 16–17 (“*General Plastic*”)). The Board correctly identified that the statute expressly provides an exception to the one-year time bar (set forth in 35 U.S.C. § 315(b)) for a request for joinder. Paper 30 at 7 n.7, 18 (citing 35 U.S.C. § 315(b) (“The time limitation set forth . . . shall not apply to a request for joinder under subsection (c)”). VLSI requested POP review of

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the Board's decision to join Intel to the proceeding, and that request was denied. Papers 34 and 40.

On August 30, 2022, the Board authorized VLSI to file a Motion to Terminate Intel from the proceeding, setting forth VLSI's arguments on res judicata. Paper 70, 2. The Board authorized Intel to file an opposition to the motion. *Id.* VLSI filed the Motion to Terminate on September 29, 2022. Paper 91. Intel filed its opposition on October 27, 2022. Paper 97. VLSI filed a reply on November 28, 2022. Paper 98. On June 2, 2023, the Board denied the motion. Paper 128, 9.

F. Director Review

Citing "novel issues of law and policy" raised by this proceeding, I ordered a *sua sponte* Director Review of the Board's Institution Decision on June 7, 2022. Paper 31. Concurrent with my Order, the POP dismissed the rehearing and POP review requests. Paper 32.

On July 7, 2022, I issued a Scheduling Order for the Director Review. Paper 35. The Scheduling Order explained that "this proceeding presents issues of first impression," including questions as to "[w]hat action the Director, and by delegation the Board, should take when addressing allegations of abuse of process or conduct that otherwise thwarts, as opposed to advances, the goals of the Office and/or the AIA." *Id.* at 7–8. It grounded this proceeding in Director's discretion over the decision whether to institute, indicating that "[w]hen abuse has been demonstrated, the Board retains discretion to, *inter alia*, deny institution of AIA proceedings or terminate instituted trials." *Id.* at 7. It also explained that this proceeding

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“involves issues of particular importance to the Office, the United States innovation economy, and the patent community.” *Id.* at 7–8. In particular, I identified the following issues as relevant:

1. What actions the Director, and by delegation the Board, should take when faced with evidence of an abuse of process or conduct that otherwise thwarts, as opposed to advances, the goals of the Office and/or the AIA; and
2. How the Director, and by delegation the Board, should assess conduct to determine if it constitutes an abuse of process or if it thwarts, as opposed to advances, the goals of the Office and/or the AIA, and what conduct should be considered as such.

Id. I directed the parties to address these questions and to support their answers “in their briefing, including through new arguments and non-declaratory evidence.” *Id.* at 8. I also invited *amici curiae* briefing. *Id.*

To enable me to address those questions in the context of this review, my Scheduling Order also instructed the parties to answer interrogatories and exchange certain categories of information as Mandated Discovery. *Id.* at 8–11. My interrogatories ordered the parties to address specific questions related to the issues of particular importance in this review. *See* Paper 35, 7–9.

I ordered the Mandated Discovery “to allow all parties to answer the questions” (interrogatories) I set forth, and ordered each party to produce evidence supporting its position. *Id.* at 8, 9–10. The Mandated Discovery included, among other things, categories of documents relating to the formation and business of PQA, documents and communications “relating to

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the filing, settlement, or potential termination of this proceeding, or experts in this proceeding, not already of record in the proceeding,” and “communications with any named party relating to the filing, settlement, or potential termination of this proceeding.” *Id.* My Scheduling Order warned “that sanctions may be considered for any misrepresentation, exaggeration, or over-statement as to the facts or law made in the parties’ briefing” (*id.* at 9), and that “[a]ny attempt to withhold evidence based on a narrow interpretation of the [discovery] requests will be reviewed in conjunction with any other subject conduct and may, alone or in combination with other conduct, be sanctionable.” *Id.* at 10.

On July 20, 2022, PQA submitted objections to the Mandated Discovery. Ex. 3004; *see also* Ex. 1039 (Petitioner’s objections to Director’s Orders, filed August 4, 2022). I address PQA’s specific objections below.¹⁰ PQA also stated that it “is willing to produce responsive third-party communications in its possession, custody, and control between PQA and OpenSky, VLSI, Intel, governmental entities, and Dr. Singh . . . if the Office provides written confirmation the Office will not consider PQA’s act of producing the Third-Party Documents as waiver of PQA’s objections to the Order.” Ex. 3004 (emphasis omitted). PQA’s submission concluded

¹⁰ Although some of this Decision repeats the discussion in my previous opinion (Paper 102), this Decision weighs additional arguments by PQA (*see* Papers 120 and 121).

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with a listing of its preliminary objections regarding the interrogatories and discovery required in the Scheduling Order. *Id.*¹¹

On July 21, 2022, I extended the deadlines for the parties to exchange information and accordingly extended the briefing deadlines. Paper 37, 4. In the extension Order, I reminded the parties that “as set forth in the Scheduling Order, a party may lodge legitimate, lawful grounds for withholding documents, and shall maintain a privilege log of documents withheld.” *Id.*

On July 29, 2022, I issued a further Order addressing the scope of Mandated Discovery. Paper 39. I reminded the parties that “they are required to comply with the full scope of the Scheduling Order, including its Mandated Discovery provisions now due to be exchanged by August 4, 2022,” and “failure to comply with my Order may be sanctionable.” *Id.* at 3. I explained that potential sanctions may include, for example, “[a]n order holding facts to have been established in the proceeding.” *Id.* at 3–4 (quoting 37 C.F.R. § 42.12). The parties were further “reminded that legitimate, lawful grounds for withholding documents may be lodged and, if so, the party shall maintain a privilege log of documents withheld. No responsive document may be withheld without being included in such a privilege log.” *Id.* (internal citations omitted). Thus, I provided actual notice to the parties of specific sanctionable conduct and corresponding potential sanctions for such conduct.

¹¹ PQA’s objections listed in Exhibit 1039 include the arguments set forth in its preliminary objections. *Compare* Exhibit 1039, *with* Exhibit 3004.

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On December 22, 2022, after receiving briefing from the parties and from *amicus curiae*, I issued an Order concluding that PQA failed to comply with the Mandated Discovery and interrogatories and engaged in misconduct, “abus[ing] the IPR process including by advancing a misleading argument and a misrepresentation of fact” regarding its exclusive engagement of an expert witness. Paper 102, 3, 25 (public version); Paper 101 (confidential version). As a sanction, I dismissed PQA as a party to the IPR proceeding but declined to reverse the Institution Decision because I found that the Petition was supported by compelling merits at the time of Institution. *Id.* at 4–6 & n.4, 61. I further directed PQA to “show cause as to why it should not be ordered to pay compensatory damages to VLSI, including attorney fees, to compensate VLSI for its time and effort in this proceeding.” *Id.* at 5. Finally, I lifted a stay of the *inter partes* review.

On January 4, 2023, PQA requested an extension of time to file a rehearing request of Paper 102, which I granted. Paper 104.

On January 11, 2023, PQA filed its rehearing request (styled as a motion for reconsideration of the sanctions decision), seeking “withdrawal of the already-imposed sanctions and an opportunity to show why they should not be imposed.” Paper 105, 3. In its request, PQA did not provide any argument as to why sanctions should not be imposed, instead arguing that it had not received adequate opportunity to do so. *Id.* at 2.

On January 18, 2023, I granted PQA’s motion in part to “provide PQA with an opportunity to brief the subject of its rehearing request on the merits and to show cause why sanctions should not be imposed on the

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argued bases.” Paper 106, 3. I also “stay[ed] the underlying proceeding pending the disposition of the rehearing” request and, thus, “[i]n accordance with 37 C.F.R. § 42.100(c) . . . [I] adjust[ed] the time period for a final determination in this proceeding, which involves joinder.” *Id.* at 3–4.

On January 24, 2023, PQA filed a mandamus petition to the U.S. Court of Appeals for the Federal Circuit. Ex. 3044. The same day, PQA requested an extension to January 27, 2023 for it to file its briefing “respond[ing] to the Director’s sanctions,” which I granted. Ex. 3024.

On January 25, 2023, PQA filed a document “declin[ing] further participation” in the administrative proceedings “until the Federal Circuit has an opportunity to rule on the issues raised in PQA’s mandamus petition,” arguing that “[a]s an unlawfully dismissed party,” it was “no longer subject to the Office’s jurisdiction.” Paper 107, 1.

On January 27, 2023, I issued an Order restoring PQA as a Petitioner in the IPR to facilitate my consideration and full resolution of PQA’s rehearing request and the order to show cause. Paper 108, 4 (“vacat[ing] the portion” of my earlier decision “that orders the dismissal of PQA from the proceeding”). I gave PQA “until February 1, 2023, to file its response” to the order to show cause, making clear that “PQA may request a reasonable extension of this deadline.” *Id.* I also lifted the stay and adjusted the time period for a final determination in this proceeding, which involves joinder, to permit consideration of the pending issues. *Id.* (quoting Paper 106, 4). PQA later sought and received further extensions to file its brief, i.e., until March 8, 2023. Paper 109, 3–4; Paper 113, 3.

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On March 6, 2023, the U.S. Court of Appeals for the Federal Circuit dismissed the mandamus petition at PQA's request. Ex. 3045.

On March 9, 2023, PQA filed its response to the order to show cause (Paper 106). Paper 120 (confidential version); Paper 121 (public version).¹²

I now proceed to consider the issues of sanctions anew in view of the additional briefing from PQA in response to the order to show cause.

II. FAILURE TO COMPLY WITH MANDATED DISCOVERY

I first review PQA's objections to my Mandated Discovery and PQA's deficient responses to the discovery required in my Scheduling Order.

A. PQA's Objections to Mandated Discovery

The deadline for exchanging documents and communications contemplated by my Mandated Discovery order was August 4, 2022. Paper 37, 4. The deadline for the parties to submit briefs addressing the interrogatories with supporting documentary evidence was August 18, 2022. *Id.*; Paper 35, 8–10. The parties were repeatedly warned that no responsive documents may be withheld without being included in a privilege log, and that any attempt to withhold relevant evidence may be sanctionable. Paper 35, 10; Paper 39, 4.

On July 20, 2022, PQA sent an email with objections to my Mandated Discovery. Ex. 3004. I noted PQA's objections and reminded the parties

¹² This paper was accepted as filed out of time because the P-TACTS docketing system was down on March 8. *See* Paper 122.

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that “they are required to comply with the full scope of the Scheduling Order, including its Mandated Discovery provisions.” Paper 39, 3. PQA filed more expansive objections on August 4, 2022. Ex. 1039. For the reasons set forth below, I find their objections have no merit.

First, by statute, the Director determines whether to institute an IPR, and has discretion to deny petitions even if they satisfy the statutory criteria for institution. 35 U.S.C. § 314. Although the Director has delegated decisions on institution to the Board (37 C.F.R. § 42.4), the Director retains the power to review such decisions. *See, e.g.*, 35 U.S.C. §§ 3(a)(2)(A), 316(a)(4). Nothing in *Arthrex* or the AIA suggests otherwise. *See, e.g.*, 141 S. Ct. at 1977, 1980 (“Congress has committed the decision to institute inter partes review to the Director’s unreviewable discretion.”; “The Director . . . controls the decision whether to institute inter partes review”); *id.* at 1989 (stating that “[b]ecause Congress has vested the Director with the ‘power and duties’ of the PTO, § 3(a)(1), the Director has the authority to provide for a means of reviewing PTAB decisions”); *Apple Inc. v. Vidal*, 63 F.4th 1, 7 (Fed. Cir. 2023) (“We have also made clear that any institution decision made by the Board as delegatee of the Director is subject to reversal by the Director.”); *In re Palo Alto Networks, Inc.*, 44 F.4th 1369, 1375 (“Here, there is no structural impediment to the Director’s authority to review institution decisions either by statute or by regulation. Indeed, institution decisions are, by statute, the Director’s to make and are only made by the Board as a matter of delegated authority.”); *see also Medtronic, Inc. v. Robert Bosch Healthcare Sys., Inc.*, 839 F.3d 1382, 1385 (Fed. Cir.

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2016) (“[A]dministrative agencies possess inherent authority to reconsider their decisions, subject to certain limitations, regardless of whether they possess explicit statutory authority to do so.”). I have been clear from the outset that the goal of this proceeding is to determine whether I should exercise the discretion over institution given to the Director by Congress. Paper 31, 2.

PQA contends that “this Director Review exceeds the Director’s authority and violates PQA’s due process rights.” Ex. 1039, 3. Specifically, PQA argues that the Director does not have the authority to review a panel’s institution decision because the Supreme Court’s decision in *United States v. Arthrex* modified 35 U.S.C. § 6(c) only with respect to final Board decisions. *Id.* (citing 141 S. Ct. 1970, 1987 (2021)). PQA’s interpretation does not comport with the Director’s authority because, as explained previously, Congress gave the Director complete and unilateral authority over the institution decision. *Arthrex*, 141 S. Ct. at 1977, 1980.

PQA also argues that the Director Review is ultra vires because the Director Review was not instituted or “conducted within a short or reasonable time period.” Paper 121, 18 (citing *Cooley v. United States*, 324 F.3d 1297, 1305 (Fed. Cir. 2003) (internal citation omitted)). PQA argues that the Director Review was initiated four months after the Section 314(b) deadline and the previous decision in Paper 101 issued eleven months after the deadline. However, this was a reasonable time period for me to examine the complex nature of this proceeding, including the facts in the Petition and Preliminary Response, and render a decision on whether compelling merits

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existed. I also invited and received *amicus* briefing on the issue of sanctions during this time period.¹³

PQA also argues that after my Scheduling Order (Paper 35) affirmed the Institution Decision, only the three-member panel was authorized to conduct the IPR, not the Director alone. Paper 121, 18. PQA relies on *Arthrex* for the proposition that the AIA does not grant the Director the authority to “take control” of a PTAB proceeding, but instead only authorizes the Director to make rules governing IPRs. *Id.* (citing 35 U.S.C. §§ 6(c), 316(c); *United States v. Arthrex, Inc.*, 141 S. Ct. 1970, 1986–87 (2021)). I disagree that I have “take[n] control” over this IPR. Rather, the Director Review here is a review of the Institution Decision (*see* Paper 31, 2), and all actions that I have taken as part of Director Review, including the question of whether to sanction a party, have been necessary and incidental to my review of the Institution Decision (*see* Paper 35) and my decision as to whether to de-institute the proceeding. In particular, I investigated “[w]hat actions the Director, and by delegation the Board, should take when faced with evidence of an abuse of process. . . .” *See id.* at 7–8.

Second, PQA contends that the Mandated Discovery subjects PQA to undisclosed substantive and procedural standards and procedures under the threat of sanctions, where PQA has done nothing to warrant such action. Ex.

¹³ PQA’s reliance on *Cooley v. United States*, 324 F.3d 1297, 1305 (Fed. Cir. 2003), is inapt. In that takings case, the three-plus years it took for the Army Corps of Engineers to issue a reconsideration of its original permitting decision resulted in a 98.8% diminution in Cooley’s property value. Here the delay pales in comparison, both in time and consequence.

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1039, 7–11 (citing Paper 31; Paper 35; Paper 39). Although PQA contends that its conduct did not warrant discovery, the need for discovery was based on the particular posture of this proceeding. Here, Patent Owner has argued that PQA was formed and filed its Petition only after a significant jury verdict for infringement, not to “instill confidence in the integrity of the patent system,” as it represented to the Board, but to abuse the IPR process. *See* Paper 68, 2; Paper 35, 4, 5, 9; Pet. 2–3. These allegations, if true, would indicate that PQA was using the IPR process in a manner arguably contrary to that intended by Congress. *See* 35 U.S.C. § 316(a)(6) (authorizing the PTO to “prescrib[e] sanctions for abuse of discovery, abuse of process, or any other improper use of the proceeding, such as to harass or to cause unnecessary delay”). Considering the severity of this allegation, the *point* of the discovery was to determine whether I should exercise discretion to deny institution. PQA does not explain why it viewed the Mandated Discovery as subjecting it to “undisclosed substantive and procedural standards and procedures.” Ex. 1039, 7. My discovery orders set out clear procedures for the parties to exchange discovery and claim privilege, and provided clear notice of the potential consequences for failing to comply. Paper 39, 3–4; Paper 37, 3–4; Paper 35, 9–12. Moreover, exchange of discovery is an ordinary part of IPR practice. *See, e.g.*, 37 C.F.R. §§ 42.51, 42.52. Thus, I find that PQA’s objection has no merit.

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Third, PQA contends that the Order¹⁴ exceeds the Office's statutory and regulatory authority. Ex. 1039, 11. PQA argues that the Order is contrary to 35 U.S.C. § 6(c). *Id.* PQA further contends that the Order exceeds the discovery permitted under 35 U.S.C. § 316(a)(5) and 37 C.F.R. §§ 42.51 and 42.5. *See id.* at 8, 11; Paper 121, 19. PQA argues that the rules do not authorize discovery initiated by the Board or by the Director, and instead only provide for routine discovery or discovery requested by a party. Paper 121, 19 (citing, e.g., *Drumheller v. Dep't of Army*, 49 F.3d 1566, 1574 (Fed. Cir. 1995)). PQA also argues that § 316(a)(5) only authorizes the Director to promulgate regulations, and “does not authorize the Director to propound discovery.” *Id.*

PQA's arguments on these points are not persuasive. At the outset, and as explained above, it is important that this Director Review is evaluating the Board's decision to institute IPR in this case as my delegatee. The Supreme Court has stated that Congress has committed “to the Director's unreviewable discretion” the determination whether to institute. *Arthrex*, 141 S. Ct. at 1977. In order for the Director to meaningfully effectuate her control over institution, she must be able to inquire into the circumstances surrounding an institution, so that she can make an informed decision as to whether a proceeding was appropriately instituted. PQA cites no authority indicating that Congress intended to give the Director unreviewable discretion to decide whether to institute, but intended to limit

¹⁴ PQA appears to be referring to Paper 35. *See* Ex. 1039, 1.

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the evidence that the Director could consider in doing so. Indeed, the Director might need discovery in order to investigate whether a petitioner has an unnamed real party-in-interest or is otherwise colluding with a time-barred party seeking to come in through joinder. Section 6(c) is not relevant here because this review is part of an institution decision. *See* 35 U.S.C. § 314(a).

I turn now to PQA’s specific arguments. 37 C.F.R. § 42.51(b)(1) authorizes certain “[r]outine discovery,” but indicates that “the Board may otherwise order” different discovery.¹⁵ Under 37 C.F.R. § 42.51(b)(2), the Board may order “[a]dditional discovery” on a party’s motion when “in the interests of justice,” and “[t]he Board may specify conditions for such additional discovery.” That discovery may take many different forms. *See, e.g.,* 37 C.F.R. § 42.52 (authorizing the Board to “compel testimony and production of documents or things”), § 42.54 (authorizing the Board to “Specify[] terms, including time and place, for the disclosure or discovery”).

¹⁵ Although the regulations refer to the “Board,” 35 U.S.C. § 6(a) makes clear that the Director is a member of the Board, and 37 C.F.R. § 42.2 makes clear that regulatory references to the “Board” with respect to “petitioner decisions and interlocutory decisions” means “a Board member or employee acting with the authority of the Board.” In this context, where the Board merely exercises the Director’s unilateral, delegated authority over institution decisions, there is no doubt that the Director may exercise the “Board’s” regulatory authority, whether as a Board member or as possessed of the “authority of the Board.” Accordingly, PQA’s argument that certain of the regulations authorize “Board action, not Director action” is incorrect. *See* Paper 121, 19.

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These provisions indicate that the Board exercises control over the discovery process, and does not limit the Board to only ordering discovery upon a party's motion. Moreover, nothing in the regulations states that the Board may only order discovery on a party's motion, or that the Board is prohibited from ordering discovery *sua sponte*. Indeed, in general, it is within my or the Board's purview to "determine a proper course of conduct in a proceeding for any situation not specifically covered by [the other regulations]" and to "enter non-final orders," such as the Scheduling Order, "to administer the proceeding." 37 C.F.R. § 42.5(a).¹⁶ Here, much of the evidence relevant to the questions to be addressed in this Director Review was uniquely in PQA's custody or control, and so Mandated Discovery was a necessary "course of conduct" required "to administer the proceeding."

Even assuming that, as PQA argues, § 316(a)(5) only provides the power to promulgate regulations, and is not a separate source of power to order discovery, PQA does not explain how the Director or Board ordering discovery under § 42.5(a) would be beyond the power granted by the statute. *See* Paper 121, 18–19. Section 316(a)(5) provides that discovery may be sought where "necessary in the interest of justice," which is at the heart of the inquiry as to whether the Director should deny institution because PQA has abused the IPR process. Nothing in § 316(a)(5) suggests that the discovery powers granted by Congress are limited by who requested

¹⁶ 37 C.F.R. § 42.2 explains that "[p]roceeding means a trial or preliminary proceeding," indicating the § 42.5(a) powers apply both in connection with the institution and trial phase.

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discovery; the only limitation to Congress's broad grant of power is the "in the interest of justice" standard. Accordingly, PQA's argument that § 316(a)(5) constrains the Board's or my power to act is incorrect.

Fourth, PQA argues that the Scheduling Order is inconsistent with Board procedures governing non-routine discovery. Ex. 1039, 11–15. For example, PQA contends that there is no evidence "tending to show beyond speculation that in fact something useful will be uncovered." *Id.* at 12 (quoting *Garmin Int'l, Inc. v. Cuozzo Speed Techs. LLC*, IPR2012-00001 (PTAB Mar. 5, 2013) (Paper 26) (precedential)). Again, my Scheduling Order makes clear the basis for the ordered discovery here. The Scheduling Order explains that discovery would address questions germane to my inquiry into the circumstances surrounding PQA's formation, ownership, and conduct—information that is uniquely in the parties' (and specifically PQA's) possession. Paper 35, 7–10; 37 C.F.R. § 42.11(a) ("Parties and individuals involved in the proceeding have a duty of candor and good faith to the Office during the course of a proceeding."). I asked for this information to determine whether to exercise my discretion to de-institute the proceeding.

PQA's argument that the Order is not "easily understandable" is also not persuasive. Ex. 1039, 13. No other party indicated that they had any issue understanding the Order. PQA's argument that the discovery is overly burdensome (Ex. 1039, 13–14) fares no better—PQA could have sought to file a motion to revise the standing protective order "[f]orbidden . . . or [s]pecifying terms . . . for the disclosure or discovery" to alleviate that

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burden (37 C.F.R. § 42.54(a)(1)), or at least have requested a second extension if it could demonstrate an actual burden, but instead chose noncompliance.

PQA briefly argues that the Order violates its members' constitutional rights by compelling PQA members to disclose their identities without evidence of wrongdoing or inaccurate mandatory notices. Ex. 1039, 15. PQA does not explain how complying with a discovery order results in a constitutional violation. Further, by choosing to file this IPR, PQA availed itself of my and the Board's jurisdiction and opened itself to questions regarding its members and purpose, among others. *See, e.g.*, 37 C.F.R. § 42.8 ("Mandatory notices" include "[i]dentify[ing] each real party-in-interest for the party.>").

PQA ends its objections with a series of similarly unpersuasive arguments. PQA suggests that the Order is inconsistent with the purposes of the AIA. Ex. 1039, 5–6, 10. PQA also asserts that the Order contravenes congressional intent for "discovery in *inter partes* review proceedings to be limited in [both] scope and expense." *Id.* at 15. However, PQA fails to acknowledge that, along with the goal of improving patent quality, "Congress recognized the importance of protecting patent owners from patent challengers who could use the new administrative review procedures as 'tools for harassment.'" *WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1317 (Fed. Cir. 2018) (citing H. Rep. No. 112–98, at 48 (2011)). The Order sets forth discovery for this very purpose, to identify and address potential harassment in this proceeding.

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PQA's argument that the Order is inconsistent with the guidelines for Director Review rests on its contention that "the Order does not identify any issue of first impression." Ex. 1039, 16. PQA provides no citation for the claim that Director Review is limited to issues of first impression. In any event, my Order indicated that the issues here are ones of first impression. *Id.* Finally, PQA contends that the Order would require it to waive privilege objections by disclosing privileged documents to a federal agency, *id.* at 17 (citing *In re Qwest Commc'ns Int'l Inc.*, 450 F.3d 1179, 1186 (10th Cir. 2006)), but avoiding such waiver while still proving sufficient indicia to test that privilege claim is the point of a fulsome privilege log, which PQA failed to submit. *See infra* § II.B. PQA cannot have it both ways—it cannot both seek to maintain the proceeding, but not reveal information legitimately within the scope of that proceeding it seeks to maintain.

B. PQA's Failure to Comply with Mandatory Discovery and Interrogatories

PQA failed to comply with the discovery requirements set forth in the Scheduling Order by: (1) refusing to provide internal documents to the other parties in the proceeding, or instead, a privilege log listing privileged documents withheld for in camera review;¹⁷ and (2) failing to respond in good faith to the interrogatories, with adequate evidence. Paper 35, 8–10. Each of these failures to comply is independently sanctionable. *Id.* at 9–10.

¹⁷ PQA logged work product relating to its communications between PQA and Dr. Singh, and thus partially complied in this manner. Ex. 1039, 1.

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1. PQA refused to produce confidential documents under seal, or a privilege log of internal documents that were not produced

As explained above, the deadline for the exchange of documents and communications was August 4, 2022. On August 11, 2022, VLSI requested in camera review, as to the production made by PQA. Paper 43. VLSI asserts that it:

cannot identify with specificity documents for in camera review as to the responsive documents . . . because PQA has (i) failed to produce internal documents; and (ii) failed to provide a meaningful privilege log, instead providing only a very limited work product redaction log in this matter, each in violation of the Director's Orders (*see* Papers 35, 37 and 39).

Id. at 1. VLSI asserts that “PQA produced 111 documents and a ‘privilege log’ consisting of only 22 entries. The first 21 entries correspond to redacted email chains between PQA and its technical expert, Dr. Adit Singh, and identify the basis for those redactions as ‘work product protection,’ but not attorney-client privilege.” *Id.* at 3 (internal footnote omitted). VLSI contends that “PQA’s August 4, 2022 log identifies no documents withheld for attorney-client privilege” and, instead, PQA acknowledges that it has not logged any communications between PQA and its attorneys. *Id.* at 4. VLSI argues that “despite the fact that the Director has expressly found that PQA’s objections are not a basis upon which to withhold documents or to not log, PQA has chosen to stand on its objections and withheld documents and a privilege log in violation of the Director’s express Orders.” *Id.* at 5–6 (citing Ex. 1039).

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On August 18, 2022, PQA filed its initial brief in response to my Director Review order. Paper 67.¹⁸

In its responsive brief, filed September 1, 2022, PQA asserts that it produced responsive documents, and that it has not willfully violated any order. Paper 77, 15–16.¹⁹ Instead, PQA asserts that VLSI violated my Orders because “VLSI did not produce or log any (i) internal communications of VLSI, Fortress Investment Group, and/or other VLSI affiliates, or (ii) communications solely among VLSI’s outside or in-house counsel.” *See id.* at 16. PQA further asserts that “VLSI’s allegations of non-compliance during the Director review are actions that occurred well after institution and thus do not impact the Institution Decision in this proceeding.” *Id.* at 17 (emphasis omitted). None of these arguments justify PQA’s failure to comply.

PQA appears to admit that it did not produce or log any internal communications when it asserts that PQA and VLSI acted similarly. Paper 71, 15–16 (“VLSI did the *exact* same thing. VLSI only logged communications between VLSI in-house attorneys and outside counsel. VLSI did not produce or log any . . . internal communications”) (emphasis omitted)). PQA does not provide any satisfactory reason for its refusal to comply with the Mandated Discovery. Having overruled

¹⁸ Paper 67 is the nonconfidential version of PQA’s Initial Brief in response to the Director Review order; Paper 51 is the confidential version.

¹⁹ Paper 77 is the nonconfidential version of PQA’s Brief in Response to Patent Owner’s Director Review brief; Paper 71 is the confidential version.

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PQA's objections to discovery, *see supra* § II.A, I find that PQA did not comply with the Mandated Discovery, as required by the Scheduling Order. *See* Paper 35, 9–10.²⁰

2. *PQA's responses to the interrogatories are inadequate and lack evidentiary support*

In addition to its express refusal to comply with the Mandated Discovery, PQA failed to respond adequately to the interrogatories set forth in the Scheduling Order, which required the parties to respond with citation to supporting documentary evidence. Paper 35, 8. PQA's initial brief purports to address the interrogatories listed in the Scheduling Order but fails to do so adequately. Paper 67, 8–18. For instance, PQA refers to a declaration of Joseph A. Uradnik, Ex. 1032, which was already of record. *See id.* However, that declaration did not respond directly to the interrogatories, leaving many of the interrogatories unanswered or unsubstantiated by PQA.

For example, interrogatory (a) asked, among other things, for what purpose PQA was formed, what its business is, and who are its members. Paper 35, 8. To answer these questions, the Scheduling Order required PQA to provide materials including communications related to the formation of PQA and documents related to its business plan. *Id.* at 9. PQA responds by stating that the “initial authorized business of PQA is to challenge patent(s) to ensure patent quality.” Paper 67, 8. PQA refuses to disclose its members

²⁰ This decision on PQA's request for reconsideration does not address the adequacy of VLSI's discovery compliance.

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by stating that “PQA’s members are United States citizens, none of whom are employed by, work for, or are affiliated with Intel, OpenSky, or VLSI.” *Id.* (citing Ex. 1032 ¶ 6). PQA states that “[n]o other persons or entities beyond PQA’s members have an interest in PQA, its future revenues, profits, or obligations, or any of its activities including this proceeding.” *Id.* at 8–9 (citing Ex. 1032 ¶¶ 4, 5, 7–11).

This answer is not responsive. As an initial matter, this answer only makes an assertion as to who PQA’s members are not; it does not identify the members of PQA. *See* Paper 35, 8 (“Who are members of PQA?”). In addition, PQA does not answer the interrogatory seeking the purpose for which PQA was formed, nor does PQA provide any required supporting evidence that would allow me, VLSI, or Intel to verify that PQA’s business interest is truly “ensur[ing] patent quality,” as argued by PQA. *See* Paper 67, 8; Paper 46, 10–11; Paper 68, 2–5.

Interrogatory (b) asked, “[o]ther than communications already in the record, what communications have taken place between PQA and each of the other parties?” Paper 35, 8. To answer this question, the Scheduling Order required PQA to provide the other parties with “all documents and communications relating to the filing, settlement, or potential termination of this proceeding, or experts in this proceeding, not already of record.” *Id.* at 9.

PQA reports that after it filed its Petition, “VLSI contacted PQA to discuss settlement” and PQA declined. Paper 67, 6. PQA also explains that VLSI contacted PQA again, after the Board instituted this proceeding. *Id.* at

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7. PQA states that [REDACTED]

[REDACTED]. Paper 51, 9.

PQA further reports that “[t]he parties did not agree to settlement before institution, and they have not discussed settlement since then.” *Id.* at 7; *see also id.* at 9 (responding to the interrogatory by, in part, referring to these communications).

PQA also states that since Intel’s joinder as a petitioner on June 6, 2022, PQA and Intel have had a common interest and have cooperated in the challenge to the merits of the unpatentability of the ’373 patent, which is not part of the Director Review, and that PQA has no other formal or informal relationship with Intel. *Id.* at 10.

PQA does not explain sufficiently the nature of its communications with VLSI in PQA’s initial brief.²¹ In its responsive brief, PQA goes into some further detail. Paper 77, 4–7; *see also* Paper 71 (confidential version), 4–7 (citing Exs. 2065, [REDACTED]. In particular, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

²¹ According to VLSI, in the privilege log that PQA submitted to VLSI, “[t]he last entry lists several communications that appear to correspond to communications between PQA and VLSI that the log states are withheld based on only PQA’s ‘objections,’” not privilege or work product protection, and that PQA’s email to the Board sent along with the August 4 production states ‘are documents VLSI has in its own possession.’” Paper 43, 3 n.1 (citing Ex. 3015).

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. VLSI bases its allegation on the following email from PQA:

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Id. at 7–8 (citing Ex. 2069; Ex. 2076).

I find PQA's responses deficient. For example, [REDACTED]

██████████. PQA's briefing also was not fully responsive to the

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interrogatory question about its dealings with VLSI, as VLSI correctly points out.²² Paper 76, 1, 7–8 (citing Exs. 2064–2078). [REDACTED]

[REDACTED]. See Exs. 2075, 2076

([REDACTED]). Further, PQA did not mention that PQA implied that [REDACTED]

[REDACTED]. See

Ex. 2069 ([REDACTED]

PQA argues that PQA was bound by its agreement not to disclose the substance of its discussions with VLSI without a court order compelling it to

²² VLSI alleges that PQA failed to produce communications between PQA and Intel that are logged in a privilege log by Intel and that are not logged by PQA. See Paper 76, 1. [REDACTED]

[REDACTED]. Ex. 1518.

²³ Although VLSI asserts that [REDACTED] (Paper 50, 6), I rely for factual findings on Exhibits 2075 and 2076 which simply indicate that [REDACTED]. I note that VLSI offered to submit new declaratory evidence to substantiate the remainder of its assertion. See Paper 68, 6 n.1.

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do so. Paper 121, 13–14 (citing *Gumbs v. Int’l Harvester, Inc.*, 718 F.2d 68, 96 (3d Cir. 1983)). However, this would not have prevented PQA from disclosing this information in a confidential, sealed version of its filing in response to my interrogatory request, based on the protective order for this proceeding. *See* Paper 36; Ex. 3003. Moreover, PQA could have at least identified these communications as potentially responsive had it provided a responsive privilege log.

Interrogatory (c) asked, “[c]ould PQA be subject to claims of infringement of the ’373 patent,” and “[d]oes PQA have a policy reason for filing the Petition that benefits the public at large beside any reasons articulated in the already-filed papers?” Paper 35, 8. PQA resists answering this question by arguing that an invalid patent cannot be infringed, that it does not wish to admit infringement, that infringement and validity are separate questions, and that the Intel products found to infringe are used by millions of people and businesses in the United States. Paper 67, 10–12. PQA argues that it has served a public interest by highlighting what it considers to be a problem with the Office’s *Fintiv* practice, that it has filed a meritorious petition, and that “the public interest in the validity of a patent is arguably at its highest when a U.S. company has been found to infringe and is liable for one of the biggest patent verdicts in history.” *Id.* at 12–14. PQA’s briefing was thus not responsive to the underlying question of infringement, i.e., the extent to which PQA participates in the market for products covered by the patents in question.

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Interrogatory (d) asked, “[d]oes the evidence in this proceeding demonstrate an abuse of process . . . and, if so, which evidence and how should that evidence be weighted and addressed?” Paper 35, 8–9. To answer this question, the Scheduling Order required PQA to provide the other parties with “all communications with any named party relating to the filing, settlement, or potential termination of this proceeding.” *Id.* at 10. PQA responds that there is no abuse of process, but fails to provide supporting evidence. Paper 67, 14. Moreover, as discussed above, PQA omitted information [REDACTED].

Apart from its own actions, PQA argues that the Board and Director confirmed the merits of PQA’s petition and that a meritorious petition should never be considered an abuse of process or contrary to the goals of the Office. *Id.* at 14 and n.2. However, other improper behavior beyond the filing of a petition may be sanctionable even if a petition is meritorious. *See National Ass’n of Government Employees, Inc. v. National Federation of Federal Employees*, 844 F.2d 216, 224 (5th Cir. 1988) (discussing a former

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version of Federal Rule of Civil Procedure 11).²⁴ ²⁵ PQA also argues that this proceeding will be the first adjudication—by any tribunal—of the validity of the '373 patent, that PQA and Intel confirmed through document productions there is no hidden connection between Intel and PQA, and that PQA has vigorously prosecuted this IPR and [REDACTED]

[REDACTED]. However, PQA failed to provide evidence with respect to [REDACTED]. PQA's briefing was thus non-responsive to this interrogatory question.

Interrogatory (e) asked, “[w]hat is the basis for concluding that there are no other real parties in interest, beyond PQA,” and “[a]re there additional people or entities that should be considered as potential real parties in interest?” Paper 35, 8–9. To answer this question, the Scheduling Order

²⁴ In that case, the court reasoned that: “‘If a reasonably clear legal justification can be shown for the filing of the paper in question, no improper purpose can be found and sanctions are inappropriate.’” *Id.* At the same time, the court also stated that: “we do not hold that the filing of a paper for an improper purpose is immunized from Rule 11 sanctions simply because it is well grounded in fact and law. The case can be made . . . that the filing of excessive motions, even if each is ‘well grounded,’ may under some circumstances constitute ‘harassment’ sanctionable under the Rule.” *Id.*

²⁵ Because I have found that PQA's Petition had compelling merits at the time of institution (*see* Paper 102, 61), I do not base my findings on failure to comply with discovery and misrepresentation or misleading argument on PQA's motive for filing the Petition itself.

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required PQA to provide the other parties with “all documents relating to PQA’s business plan including its funding, its potential revenue, and the future allocation of any of its profits.” *Id.* at 9. PQA’s response to this interrogatory essentially repeats its response to interrogatory (a) and relies on the Declaration of Joseph A. Uradnik (Ex. 1032). *See* Paper 67, 15–17. For reasons similar to those I gave regarding interrogatory (a), PQA’s answer is not responsive to interrogatory (e) and does not provide sufficient evidence to allow me to evaluate PQA’s answer.

Interrogatory (f) asked, “[d]id PQA ever condition any action relating to this proceeding . . . on payment or other consideration by Patent Owner or anyone else?” Paper 35, 9. [REDACTED]

[REDACTED]. PQA essentially argues that it has never suggested delaying, losing, or not participating in the proceeding and never attempted to influence an expert not to participate in the proceeding. *See* Paper 67, 18. PQA states that while PQA’s engagement with Dr. Singh is “exclusive,” that provision may be waived on request. *Id.* (citing Ex. 1034). PQA states that since its engagement of Dr. Singh, no party (including OpenSky) has ever sought to engage him in connection with the ’373 patent, and thus PQA has never declined any such request. *Id.*

PQA’s answer in its initial brief (Paper 67) is misleading and not fully responsive to interrogatory (f). For starters, PQA fails to acknowledge that it intentionally and purposefully inserted the unqualified sentence into Dr. Singh’s Intel declaration that he had been “exclusively retained by Petitioner

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Patent Quality Assurance LLC s:\ [sic] for the duration of th[e] case.” Ex. 1002 ¶ 174; *see also* Pet. 4 (“Petitioner *exclusively* engaged Dr. Singh ... to challenge the ’373 patent”). At the time PQA filed this declaration, no other party was aware that PQA could waive this provision. That fact did not come to light until months later when PQA produced his engagement letter. *See* Ex. 1034 (filed 11/16/2021). Given this categorical statement of his unavailability, PQA’s argument that “no one asked” PQA to waive this exclusivity provision, rings rather hollow.

Moreover, VLSI provides evidence that [REDACTED]
[REDACTED]
[REDACTED]. Interrogatory (f) inquired whether PQA ever conditioned any action “relating to this proceeding.” Paper 35, 9. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].
Moreover, one aspect of [REDACTED]
[REDACTED]
[REDACTED]. Paper 71, 4–5.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]. Paper 71, 9 (citing

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Ex. 2065, 1). It is worth noting, however, that PQA only provided this justification after VLSI exposed the parties' negotiation in VLSI's interrogatory answer. PQA could have—and should have—provided this information in the first instance (i.e., in its initial brief) in response to the interrogatory (f). *See* 37 C.F.R. § 42.11(a) (“Parties and individuals involved in the proceeding have a duty of candor and good faith to the Office during the course of a proceeding.”). I find that PQA's failure to mention anything of this nature in its initial brief represents an attempt to subvert answering interrogatory (f).

C. Sanctions for PQA's Failure to Comply

PQA has identified no authority that would allow it to ignore the Mandated Discovery and interrogatories in my Scheduling Order. Therefore, I determine that PQA has failed to comply with the Mandated Discovery. *See* 37 C.F.R. § 42.12(a)(1) (“Failure to comply with an applicable rule or order in the proceeding;”). I determine that PQA's conduct in discovery rises to the level of sanctionable conduct, and hereby give the parties notice that I am contemplating imposing an attorney-fee order or an admonishment as a sanction. *See* 37 C.F.R. § 42.12(b) (non-exhaustive list of sanctions).

The Director²⁶ has the authority to impose sanctions against a party for misconduct. 35 U.S.C. § 316(a); 37 C.F.R. §§ 42.2, 42.12(a); *see Apple*

²⁶ The Director of the USPTO, the Deputy Director of the USPTO, the Commissioner for Patents, the Commissioner for Trademarks, and the

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Inc. v. Voip-Pal.com, Inc., 976 F.3d 1316, 1323 (Fed. Cir. 2020); *see also* AIPLA, 9; BAS, 6–7; Unified, 3–5, 12–17; Naples, 6. Although 37 C.F.R. § 42.12(a) does not require sanctions to be imposed, where, as here, a party has clearly violated an order after being provided with reasonable notice of possible sanctions for failing to comply with that order (and a full and fair opportunity to respond), the integrity of practice before the Board is best served by imposing sanctions commensurate with the sanctionable misconduct to not only punish the offending party, but also to deter future misconduct. *See* 37 C.F.R. § 42.12(a) (authorizing sanctions for “misconduct”); *see also id.* at § 42.11(d)(4) (permitting sanctions to “deter repetition of the conduct or comparable conduct by others similarly situated”).

Whether sanctions are appropriate is a highly fact-specific question, and the relevant considerations will vary from case to case. Prior sanction contexts have considered:

- (1) whether the party has performed conduct warranting sanctions;
- (2) whether that conduct has caused harm (to, for example, another party, the proceedings, or the USPTO); and
- (3) whether the potential sanctions are proportionate to the harm.

Administrative Patent Judges shall constitute the PTAB. 35 U.S.C. § 6(a). Accordingly, the Director may levy sanctions as a member of the Board. Here, where the Director Review is in the context of an institution decision, the review is of the exercise of the power delegated by the Director to the panel to decide whether to institute a proceeding. *See* 35 U.S.C. § 314(a).

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See, e.g., R.J. Reynolds Vapor Co. v. Fontem Holdings I B.V., IPR2017-01318, Paper 16 at 5, 8 (PTAB Aug. 6, 2018). The Director may impose sanctions, for example, for “[f]ailure to comply with an applicable rule or order in the proceeding”; “[a]dvancing a misleading or frivolous argument or request for relief”; “[m]isrepresentation of a fact”; “[a]buse of discovery”; “abuse of process”; or “[a]ny other improper use of the proceeding, including actions that harass or cause unnecessary delay or an unnecessary increase in the cost of the proceeding.” 37 C.F.R. §§ 42.12(a)(1), (2), (3), (5), (6), (7). Sanctions may include, for example, “[a]n order holding facts to have been established in the proceeding”; “an order precluding a party from filing a paper”; or “an order providing for compensatory expenses, including attorney fees.” *Id.* §§ 42.12(b)(1), (2), (6). Additionally, the Director may issue sanctions not explicitly provided in 37 C.F.R. § 42.12(b). *See Voip-Pal.com*, 976 F.3d at 1323–24. Any sanction must be commensurate with the harm caused. *See R.J. Reynolds*, IPR2017-01318, Paper 16 at 5.

In view of the record as discussed above, including PQA’s response to interrogatories (a), (c), and (e), I find that PQA was not only non-responsive to my interrogatories but that PQA was evasive in its responses and deliberately failed to comply with mandated discovery. This sort of discovery misconduct would be sufficient to give rise to adverse inferences under 37 C.F.R. § 42.12(b)(1), as I warned. However, I do not apply—and do not need to apply—adverse inferences regarding discovery noncompliance with respect to settlement discussions or to PQA’s

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relationship with Dr. Singh because of the evidence actually disclosed by VLSI.^{27, 28} Nevertheless, the fact remains that PQA refused to comply with Mandated Discovery without adequate basis. Therefore, I order PQA to show cause why I should not impose an attorney-fee order or an admonishment as a sanction.

III. OTHER SANCTIONABLE CONDUCT

A. PQA's Conduct²⁹

1. Factual Findings

As discussed above, PQA represented in its Petition that it had “*exclusively engaged*” Dr. Singh (Pet. 4) (emphasis in brief), such that Dr. Singh could not be presented for cross-examination in OpenSky's IPR.

²⁷ This is not to say that I condone PQA's conduct with respect to settlement discussions or Dr. Singh—only that it is not necessary to draw adverse inferences in order to make factual findings based on the record evidence with respect thereto.

²⁸ PQA argues that any adverse inference sanction based on PQA's nondisclosure of the PQA-VLSI settlement discussions would be improper because that evidence was actually disclosed by VLSI. Paper 121, 14 (citing *Eaton Corp. v. Appliance Valves Corp.*, 790 F.2d 874, 878 (Fed. Cir. 1986)). Because there is sufficient documentary evidence of PQA's misrepresentation of fact and misleading argument to decide this case, I do not need to rely on adverse inferences and I do not reach these arguments.

²⁹ Responding to the prior Order's statement that “[t]he totality of PQA's conduct evinces a singular focus on using an AIA proceeding to extort money” (Paper 102, 54), PQA makes arguments that it did not seek to extort money from VLSI. Paper 121, 20. These arguments are moot because this Decision does not make such a finding.

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See Pet. 4–5 (“OpenSky cannot present either expert for cross-examination as required. OpenSky must either dismiss its petition to refile with a new expert or risk exclusion of its expert declaration as mere hearsay. The Board should not discretionarily deny this petition when OpenSky’s petition is not properly supported”) (citations omitted).

Indeed, the Board expressly relied on PQA’s statements regarding exclusivity and denied OpenSky’s petition on that basis. *See* IPR2021-01056, Paper 18, 5–9, 6 (“Rather than retaining an expert who would be available for cross examination, Petitioner chose to rely on Dr. Singh’s declaration throughout the Petition.”), 7 (“Petitioner contends further that it will seek Dr. Singh’s cooperation if trial is instituted. That suggestion, however, stands at odds with Dr. Singh’s agreement to work exclusively with PQA. . . . Dr. Singh has agreed to work exclusively with PQA, which has not given any indication that it would release Dr. Singh from his agreement.”) (citations omitted), 9 (“Given the facts surrounding Dr. Singh’s testimony, we do not consider him likely to be a willing participant in this proceeding. . . . Under the circumstances, we determine that the Petition does not warrant institution.”).

PQA later attempted to qualify this representation by arguing that the exclusivity provision could be waived. *Compare* Pet. 4 (“In contrast, Petitioner *exclusively* engaged Dr. Singh and Dr. Hall-Ellis to challenge the ’373 patent. Thus, OpenSky cannot present either expert for cross-examination as required.”), *with* Paper 67, 18 (“Similarly, while PQA’s engagement with Dr. Singh is ‘exclusive,’ that provision may be waived on

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request.”). However, this qualification appears disingenuous and, at best, comes too late—eight months *after* the Board relied upon PQA’s statements to deny the OpenSky petition and instituting PQA’s nearly identical petition in its place. Had PQA not made the representation in its Petition—that Dr. Singh could not be presented for cross-examination and, thus, OpenSky must either dismiss its petition or risk exclusion—OpenSky may have sought permission to engage Dr. Singh. Indeed, I find it unsurprising that OpenSky did not seek permission to engage Dr. Singh in view of PQA’s statements in its Petition and its intentional changes to his actual declaration.

2. *Misleading arguments or misrepresentations of fact*

I determine that the text of 37 C.F.R. § 42.12(a)(2) and (3) is plain that a misleading argument or misrepresentation of fact is sanctionable conduct.

I find that PQA advanced a misleading or frivolous argument, misrepresented a fact by (1) representing in its Petition that it had exclusively engaged Dr. Singh, an expert who was relied on by another litigant in another proceeding; and (2) then—after the Board relied on these representations to deny OpenSky’s competing IPR petition—stating that this was an exclusivity provision that could be waived upon request. *Compare* Pet. 4, *with* Paper 67, 18.

PQA argues that both statements are accurate and not misleading because PQA never hid the fact that the exclusivity agreement was waivable and PQA never changed its position that it would not have waived

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Dr. Singh's exclusivity for OpenSky. *See* Paper 121, 1–4, 6–7. Further, PQA argues that it is literally true that no party has sought to engage Dr. Singh. *See id.* at 4. PQA argues that its statements in this Director Review were simply in response to the interrogatory and that the interrogatory does not engage in a hypothetical about what PQA would have done under different circumstances. *See id.* at 5–6, 8.

First, PQA's petition characterized its engagement with Dr. Singh as exclusive, without exception. PQA argued to the Board that it "*exclusively* engaged Dr. Singh . . . to challenge the '373 patent." Paper 1, 4 (emphasis maintained). As a result, PQA argued, OpenSky could not present him "for cross-examination as required." *Id.* PQA contended that there were two ways to cure this defect: "OpenSky must either dismiss its petition to refile with a new expert or risk exclusion of its expert declaration as mere hearsay." *Id.* At no point did PQA include that it could or would waive the exclusivity provision; indeed, its argument that OpenSky must either refile with a new expert or risk exclusion of Dr. Singh's testimony instead indicates that there was no possibility of OpenSky engaging Dr. Singh. Similarly, Dr. Singh's own declaration states unequivocally and without qualification that "I have been exclusively retained by Petitioner Patent Quality Assurance s:\ [sic] for the duration of that case." Ex. 1002, ¶ 174. This statement was inserted into the paragraph entitled "AVAILABILITY FOR CROSS-EXAMINATION" in his original declaration in the Intel IPR. *Compare id., with* IPR2020-00158, Ex. 1002 ¶ 174.

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But, as we now know, PQA's statement that it had exclusively engaged Dr. Singh was only partially true because the engagement agreement allowed Dr. Singh to work with another party with PQA's consent. *See* Ex. 1034, 2.^{30, 31} Although PQA argues that it did not hide Dr. Singh's engagement agreement, that agreement did not become of record in this case until PQA filed its pre-institution reply in this proceeding—well after the filing of PQA's petition and Dr. Singh's declaration representing that Dr. Singh was exclusively retained. Although the pre-institution reply cites the engagement agreement (Paper 8, 8), it does not explain the caveat that the exclusivity was waivable, leaving the Petition and Dr. Singh's own characterization outstanding. Counsel for PQA also submitted a declaration stating that Dr. Singh agreed to work exclusively with PQA for an 18-month timeframe, or longer if the petition, trial, or appeal continued longer. *See* Ex. 1033 ¶ 7 (quoting, e.g., Ex. 1034). Later, counsel for PQA noted that "Petitioner erroneously claimed an exclusive agreement with both experts." *Id.* ¶ 9 (citing Paper 1, 4). Counsel for PQA reiterated that "[t]he only exclusive engagement is with Dr. Singh." *Id.* Taken together, these submissions incorrectly represented to the Board that Dr. Singh was working

³⁰ OpenSky might have sought to engage Dr. Singh but for these representations, although PQA represents that they would not have released Dr. Singh to work with OpenSky.

³¹ PQA acknowledges that, with PQA's consent, Dr. Singh worked with both PQA and Intel on a reply brief subsequent to PQA's interrogatory responses. Paper 121, 6 n.3.

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and could only work with PQA. The Board relied on that representation in denying OpenSky's petition.

PQA argues that it did not intend to waive exclusivity absent changed circumstances (*see* Paper 120, 7), but that unstated intention does not make true the statement in the Petition and Dr. Singh's underlying declaration that it was an exclusive agreement. PQA also argues that all contracts are theoretically waivable (*see* Paper 121, 10 (*Hall v. Integon Life Ins. Co.*, 454 So. 2d 1338, 1343 (Ala. 1984))). That is, however, not applicable or relevant in this proceeding because this exclusivity agreement was expressly waivable and neither PQA nor Dr. Singh indicated any basis to conclude that the exclusivity could or would be waived. Indeed, the panel in IPR2021-01056 seems to have been aware that PQA could, in theory, release Dr. Singh, but found it unlikely that that would happen, based on PQA's statements in this proceeding. IPR2021-01056 IPR, Paper 18, 7 ("Without some factual support to demonstrate that it reasonably expects Dr. Singh to cooperate, in light of the exclusive agreement with PQA, Petitioner's assertion is speculation and does not demonstrate sufficiently that Dr. Singh would likely participate in this proceeding.").

Nevertheless, PQA's Petition and pre-institution reply misrepresented the nature of Dr. Singh's exclusivity. These statements are therefore misleading arguments and/or misrepresentations of fact.

Once this Director Review began, PQA changed how it characterized its agreement with Dr. Singh. In response to interrogatory (f), which asked, among other things, whether PQA ever took "action that will influence any

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experts’ participation in this proceeding,” PQA stated that “while PQA’s engagement with Dr. Singh is ‘exclusive,’ that provision may be waived upon request.” Paper 67, 17–18. In other words, once I signaled that “influenc[ing] any experts’ participation in this proceeding” might be considered improper, PQA highlighted that any exclusivity with Dr. Singh could be waived—even putting the word “exclusive” in quotes, perhaps intending to suggest that any exclusivity was in name only. *Id.* at 18. PQA then stated that “no party (including OpenSky) has ever sought to engage [Dr. Singh] in connection with the ’373 patent, thus PQA has never declined any such request.” *Id.* at 18. This suggests that PQA would have entertained releasing Dr. Singh from his obligation if requested to do so. This statement is inconsistent with the manner in which PQA represented its agreement with Dr. Singh in its petition, as well as Dr. Singh and its counsel’s declarations.

PQA’s most recent filings change course again. PQA states that Dr. Singh was exclusively engaged, but that possible waiver “was not relevant because PQA intended to work exclusively with Dr. Singh absent changed circumstances.” Paper 121, at 7. Whether PQA considered the waiver provision “relevant” does not change its scope, and does not change that PQA did not include the waiver provision in its characterizations of Dr. Singh’s engagement in its Petition. Moreover, PQA’s now-stated intention not to waive exclusivity is in tension with its earlier statement that no party “including OpenSky” sought to engage Dr. Singh, *see* Paper 67, 18, which suggests that PQA would have considered waiving exclusivity for OpenSky.

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PQA's argument that exclusive engagement is "common" and "routine practice," Paper 121, 9–10, is in tension with PQA's counsel's admission that it did "not have an exclusive engagement with [its other expert,] Dr. Hall-Ellis." Ex. 1033 ¶ 9.

At the end of the day, PQA's various statements are inconsistent, i.e., stating in its initial brief on Director Review that the exclusivity agreement was waivable; previously stating that there was an exclusivity agreement without mentioning that the agreement was waivable; and previously stating that OpenSky could not produce Dr. Singh for cross-examination without mentioning that Dr. Singh's exclusivity was waivable. Either PQA's original statements that it had an exclusive agreement and that Dr. Singh could not be offered for cross-examination were misleading (in view of its later admission that the statement was waivable), or its later statement that the agreement was waivable was misleading (in view of PQA's admission that it did not intend to waive exclusivity), or both were misleading, each in their own way.

B. Conclusion

PQA has made misrepresentations of fact and/or misleading arguments regarding the nature of its exclusivity with Dr. Singh.³²

³² I do not reach PQA's remaining arguments, which do not relate to the issues of failure to comply with mandated discovery and misrepresentation of fact or misleading argument.

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IV. REMEDY FOR SANCTIONABLE CONDUCT; SHOW CAUSE

The AIA granted the Office broad authority to prescribe regulations aimed at sanctioning the “abuse of discovery, abuse of process, or any other improper use of the proceeding, such as to harass or to cause unnecessary delay or an unnecessary increase in the cost of the proceeding.” 35 U.S.C. § 316(a)(6). Our existing regulations take full advantage of that authority and provide a broad range of potential sanctions to address such as failure to comply with an applicable order in a proceeding, e.g., on mandated discovery, misrepresentations of fact and misleading arguments and other sanctionable conduct, ranging from awarding “compensatory expenses” to “[j]udgment in the trial.” 37 C.F.R. § 42.12(a)(1)–(3), (6), (b). These enumerated sanctions are not exclusive. The Federal Circuit has held that § 42.12(b) “allows the Board to issue sanctions not explicitly provided in the regulation.” *Voip-Pal.com, Inc.*, 976 F.3d at 1323. Accordingly, the Office has robust powers to sanction for failure to comply with an applicable order in a proceeding, e.g., on mandated discovery, for misrepresentations of fact, misleading arguments, and for other sanctionable conduct where it occurs and to deter similar misconduct. I will ensure that the remedy suits the wrongdoing, both in this specific case and more generally when faced with evidence of conduct that thwarts, rather than advances, the goals of the Office and the AIA.

For all the reasons discussed above, PQA is ordered to show cause as to why it should not be ordered to pay compensatory expenses to VLSI, including attorney fees, or otherwise be reprimanded or admonished, as a

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further sanction for misrepresentation of fact, misleading argument, or failure to comply with mandated discovery. *See* 37 C.F.R. § 42.12(b)(6); *Voip-Pal.com, Inc.*, 976 F.3d at 1323. Within 7 calendar days of this Decision, PQA and VLSI shall each file a 15-page brief addressing whether an admonishment or an award of attorney fees is appropriate, and if an award of fees is appropriate, how such fees should be determined, e.g., the appropriate time frame for which fees should be assessed. Detailed billing statements and declaratory evidence as to the time and amount of fees may be filed as exhibits and excluded from the page limit. PQA and VLSI may each file a 5-page responsive brief, due 7 calendar days from the date the initial briefs responding to the show cause order are filed.

V. ORDER

For the foregoing reasons, it is hereby:

ORDERED that PQA and VLSI shall file a brief addressing whether PQA should be admonished and/or compensatory expenses should be assessed against PQA as a sanction for PQA's misrepresentation of fact, misleading argument, and/or failure to comply with mandated discovery. Briefing shall be filed within 7 calendar days of this decision and shall be limited to 15 pages. Detailed billing statements and declaratory evidence as to the time and amount of fees may be filed as exhibits and excluded from the page limit; and

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FURTHER ORDERED that PQA and VLSI may each file a 5-page responsive brief, due 7 calendar days from the date the initial briefs responding to the show cause order are filed.

PETITIONER:

Bruce Slayden

Brian Banner

Tecuan Flores

Truman Fenton

SLAYDEN GRUBERT BEARD PLLC

bslayden@sgbfirm.com

bbanner@sgbfirm.com

tflores@sgbfirm.com

tfenton@sgbfirm.com

Benjamin Fernandez

David Cavanaugh

Steven Horn

Dominic Massa

WILMER CUTLER PICKERING HALE AND DORR LLP

ben.fernandez@wilmerhale.com

david.cavanaugh@wilmerhale.com

steven.horn@wilmerhale.com

dominic.massa@wilmerhale.com

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PATENT OWNER:

Baback Redjaian

IRELL & MANELLA LLP

bredjaian@irell.com

Kenneth J. Weatherwax

Bridget Smith

Flavio Rose

Edward Hsieh

Parham Hendifar

Patrick Maloney

Jason C. Linger

LOWENSTEIN & WEATHERWAX LLP

weatherwax@lowensteinweatherwax.com

smith@lowensteinweatherwax.com

rose@lowensteinweatherwax.com

hsieh@lowensteinweatherwax.com

hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

Director_PTABDecision_Review@uspto.gov
571-272-7822

Paper No. 143
Date: December 13, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT QUALITY ASSURANCE, LLC,
INTEL CORPORATION,
Petitioners,

v.

VLSI TECHNOLOGY LLC,
Patent Owner.

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Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

ORDER
Issuing Sanctions
37 C.F.R. §§ 42.5, 42.11, 42.12

¹ Intel Corporation (“Intel”), which filed a petition in IPR2022-00479, was joined as a party to this proceeding. Paper 30.

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On August 3, 2023, I issued a Decision finding that Petitioner Patent Quality Assurance, LLC (“PQA”) had engaged in sanctionable conduct by failing to comply with mandated discovery and by making a misrepresentation of fact and/or misleading argument. Paper 131, 2, 43, 50–51 (“Decision”).² In that Decision, I ordered PQA to show cause why it should not be reprimanded or admonished, or ordered to pay compensatory expenses to Patent Owner VLSI Technology LLC (“VLSI”), including attorney fees, for the sanctionable conduct. *Id.* at 51–52. In this Order, I determine the appropriate sanction is a strong admonishment to PQA for its conduct, and a warning not to repeat this conduct in the future.

I. SANCTIONABLE CONDUCT

The background of this case is set forth in more detail in the Decision. In shorter form, I granted Director Review of the Board’s Institution Decision (Paper 10) and I mandated that the parties comply with certain discovery, including interrogatories and production of documents, to assist me in evaluating the issues on review. *See* Paper 35, 9–11; Paper 131, 20. Thereafter, I found that PQA failed to comply with the mandated discovery by (1) refusing to provide internal documents to the other parties in the proceeding, or instead, a privilege log listing allegedly privileged documents withheld for in camera review; and (2) failing to respond in good faith to the interrogatories, with adequate supporting evidence. *See* Paper 131, 26, 40, 42–43. I held that the type of discovery misconduct exhibited by PQA would be sufficient to give rise to adverse inferences under 37 C.F.R.

² Paper 131 is the nonconfidential version of the Decision; Paper 130 is the confidential version.

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§ 42.12(b)(1), but found that I did not need to apply adverse inferences in order to make findings on the record before me. *See* Paper 131, 42–43.

Additionally, I further found that PQA misrepresented a fact and/or made a misleading argument regarding its engagement of an expert, Dr. Singh. Paper 131, 50. I ordered further briefing on whether PQA should be admonished or ordered to pay compensatory expenses as sanctions for PQA’s “misrepresentation of fact, misleading argument, or failure to comply with mandated discovery.” *Id.* at 51–53. I granted an extension of the deadline for briefing. Ex. 3048. On August 21, 2023, PQA and VLSI filed opening briefs. Paper 133; Paper 134.³ On August 28, 2023, PQA and VLSI filed responsive briefs. Paper 136; Paper 137.⁴

On August 14, 2023, VLSI filed an appeal to the U.S. Court of Appeals for the Federal Circuit. Paper 132. On December 7, 2023, the Federal Circuit remanded the case back to the U.S. Patent and Trademark Office (“USPTO” or “the Office”) to resolve any remaining sanctions issues. *See* Ex. 3050.

A. PQA’s Arguments Against Sanctions

PQA advances certain arguments as to why it should not be sanctioned at all for its inadequate discovery responses.

As an initial matter, I have already determined that PQA’s conduct is sanctionable; PQA’s arguments are thus non-responsive to the question whether compensatory expenses or admonishment is an appropriate

³ The nonconfidential versions of these briefs are Papers 138 and 140. The confidential versions of these briefs are Papers 133 and Paper 134.

⁴ The nonconfidential versions of these briefs are Papers 139 and 141. The confidential versions of these briefs are Papers 136 and 137.

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sanction. *Cf.* Wright & Miller, 8B Fed. Prac. & Proc. Civ. § 2289 (3d ed. Dec. 2023 Update) (“The propriety of the discovery sought is not in issue at the time sanctions are being imposed under [Federal Rule Civil Procedure] Rule 37(b).”). Moreover, it bears reiterating that PQA’s sanctionable conduct includes its misrepresentation of facts and/or misleading arguments relating to its “exclusive” retention of Dr. Singh as an expert, not only its inadequate discovery responses. Paper 131, 50; *see id.* at 43–50. Thus, even if PQA’s third attempt to explain why its discovery-related conduct is not sanctionable were timely or had merit, those explanations would not excuse PQA’s additional sanctionable conduct relating to Dr. Singh. Nonetheless, PQA’s latest attempt to explain its discovery compliance failures lacks merit.

First, PQA now argues that it could not have been expected to log non-privileged arguments in a privilege log. Paper 138, 9 and n.5. If PQA’s argument is that the documents it failed to produce were not privileged, it should have produced them after being ordered to do so. *See* 37 C.F.R. § 42.12(a)(1).

Relatedly, PQA argues that I did not rule on PQA’s objections before the compliance deadline, apparently referring to Exhibit 3004 (an email, dated July 20, 2022) and Exhibit 1039 (Petitioner’s Objections to Director’s Orders, dated August 4, 2022), which contain a similar set of objections filed before submission of PQA’s opening brief on Director Review.⁵ Paper 138, 3; *see* Ex. 1039, 3–17; Ex. 3004. PQA suggests (without citation to legal support) that its failure to adequately comply with mandated discovery

⁵ PQA later filed Paper 48, containing a similar set of objections, on the same day that it filed its opening brief on Director Review, i.e., August 18, 2022.

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should be excused because I had not ruled on its objections before the discovery due date. PQA's argument fails for several reasons.

On July 29, 2022, I provided PQA with discovery clarification, in advance of the response deadline. *See* Paper 39. I noted PQA's objections and "confirm[ed] that a party's production of documents as required by the Scheduling Order will not constitute a waiver of that party's objections." Paper 39, 3. I reminded the parties that pending objections did not excuse them, however, from complying with the ordered discovery and that failure to comply could be sanctionable. Paper 39, 3–4.⁶

Further, as my July 29, 2022 Order made clear, PQA's discovery objections did not relieve it from a duty to adequately respond and non-compliance would be at PQA's risk. *See id.* ("[A] party's production of documents as required by the Scheduling Order will not constitute a waiver of that party's objections. The parties, however, are reminded that they are required to comply with the full scope of the Scheduling Order [F]ailure to comply with my Order may be sanctionable."). That is particularly true here, where PQA's objections were uniformly directed to arguments about the Director Review *process* itself, not to the discovery scope; those objections did not concern PQA's ability to respond. *See* Ex. 1039, 3–17. In other words, PQA's ability to respond to the mandated discovery did not turn on answers to its objections regarding my authority. *See, e.g., Grooms & Co. Constr., Inc. v. United States*, 2015 WL 8481954, *7 n.7 (Fed. Cl. No. 13-426C) (Dec. 9, 2015) (ordering sanctions based on parties' failure to comply with discovery and explaining that claimed

⁶ I also issued more than one order to show cause before issuing this admonishment, providing PQA additional opportunities for briefing. *See* Paper 101, 64–65; Paper 131, 52.

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obstacles to compliance did not excuse conduct). *But cf. Ingalls Shipbuilding, Inc. v. United States*, 857 F.2d 1448, 1451–52 (Fed. Cir. 1988) (finding dismissal was not appropriate where a party was confused about the scope of its discovery obligations) (“In view of the government’s apparent confusion about the scope of its additional discovery obligation, we see the sanction of dismissal as unduly severe.”); *Marshall v. Segona*, 621 F.2d 763, 768 (5th Cir. 1980) (“[A] party’s simple negligence, grounded in confusion or sincere misunderstanding of the Court’s orders, [does not] warrant dismissal.”).⁷

PQA challenged my authority to impose discovery and conduct review, and lodged privilege concerns. I made clear before the discovery deadline, which I extended upon request, that the parties were free to maintain a privilege log in lieu of production. Paper 37, 4; Paper 39, 4. More broadly, I made clear that the mandated discovery was designed to enable adequate and accurate resolution of the issues at hand. *See, e.g.*, Paper 35, 7–11. PQA cannot thwart my decision-making by refusing to comply with reasonable discovery requests on the basis that I lacked the power to conduct review or ask for discovery. *See, e.g., Star Fruits S.N.C. v. United States*, 393 F.3d 1277, 1284–85 (Fed. Cir. 2005) (parties must provide reasonably requested information to permit USPTO to accurately and efficiently administer patent laws). Thus, while I have already

⁷ While these decisions involve dismissal as a sanction for inadequate discovery responses, I find their reasoning on the interplay between that sanction and the violating party’s objections germane to PQA’s argument, even though PQA’s sanctionable conduct involves more than just discovery violations and even though I am evaluating the propriety of lesser sanctions. Indeed, dismissal was not part of the order to show cause at this stage of the proceeding.

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explained why PQA’s objections lacked merit (*see* Paper 131, 17–26), PQA’s position that it could not provide responsive documents, could not log any allegedly privileged responsive documents, or could not provide supported and responsive interrogatory answers—the independently sanctionable conduct here—does not prove out.

PQA also argues that I previously found that “the evidence exchanged as Mandated Discovery [was] sufficient to resolve this Director review . . .,” suggesting that its discovery noncompliance was harmless. Paper 138, 8 (quoting Paper 101, 62). However, PQA has not provided the quote in its proper context; the sentence reads in full: “For the reasons explained above, however, the evidence exchanged as Mandated Discovery is sufficient to resolve this Director review *without resorting to in camera review*.” Paper 102, 63 (emphasis added) (public version of Paper 101). Thus, my prior statement merely rejected a request that I conduct an in camera review of PQA’s allegedly privileged material and further provided instructions for PQA to maintain a privilege log. *See id.* at 17, 25. Further, to the extent that PQA argues that it withheld non-privileged documents, my rejection of in camera review does not excuse the withholding of documents not placed on a privilege log. Nor does my rejection of in camera review set a standard for whether PQA needed to comply with mandated discovery.

Third, PQA argues that sanctioning it while not sanctioning VLSI would be inequitable, arbitrary and capricious, and a violation of due process because, according to PQA, VLSI acted in the same, or even worse, manner as PQA. Paper 138, 12. PQA makes a number of high-level complaints about VLSI’s conduct. *Id.* at 12–14. The August 3, 2023 Order to show cause is about PQA’s conduct, not VLSI’s. PQA cannot excuse its conduct or otherwise avoid appropriate sanctions by trying to shift focus to another

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party's conduct. To the extent PQA argues that VLSI also made representations about the nature of Dr. Singh's relationship with PQA (*see* Paper 138, 7), VLSI's representations on this topic appear to be based on PQA's representations.

Fourth, PQA argues that the continuation of this Director Review proceeding is unauthorized and untimely because the proceeding has extended beyond the statutory date for the Board to issue a final written decision and beyond a "short and reasonable time period." Paper 138, 3, 14 (citing, e.g., *Cooley v. United States*, 324 F.3d 1297, 1305 (Fed. Cir. 2003)). I disagree. The Board timely issued its final written decision in this case. *See* Paper 129. In any event, failure to meet the one-year deadline provided by 35 U.S.C. § 316(a)(11) would not deprive the USPTO of authority to act, or jurisdiction over, the IPR. *See Purdue Pharma L.P. v. Collegium Pharm., Inc.*, 2023 WL 8043047, *3–6 (Fed. Cir. Nov. 21, 2023) (discussing analogous provision governing post-grant reviews). Lastly, as I have previously explained, PQA's reliance on *Cooley* is inapt. In that takings case, the three-plus years it took for the Army Corps of Engineers to issue a reconsideration of its original permitting decision resulted in a 98.8% diminution in *Cooley*'s property value. *Cooley*, 324 F.3d at 1304. Here, the time taken to complete Director Review pales in comparison, both in time and consequence to the parties. *See* Paper 131, 19 n.13.

Fifth, PQA appears to argue that whether PQA responded to interrogatory (c) (asking whether PQA could be subject to an infringement claim) is moot because "no products are covered by the invalid '373 patent" and because there is no standing requirement for an IPR. Paper 138, 10 and n.6. As noted above, the underlying paper—PQA's response to the appropriate sanction for PQA's conduct—was not another opportunity for

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PQA to object to discovery or try to explain its non-compliance. Further, PQA cannot cure its failure to respond to the interrogatory by now providing the requested information. And its response would be inadequate even if timely. *See* Paper 131, 35.

Sixth, PQA makes additional arguments relating to interrogatories (d) and (f). However, I only relied on PQA's failure to respond to interrogatories (a), (c), and (e) in finding that PQA deliberately failed to comply with mandated discovery, and did not rely on PQA's failure to respond to interrogatories (d) and (f) in my previous opinion. *See id.* at 42.

Accordingly, I do not agree with PQA's renewed arguments that it should not be sanctioned. I reaffirm my finding that PQA's failure to comply with mandated discovery and its misrepresentations and/or misleading arguments regarding Dr. Singh are sanctionable conduct, for the reasons set forth above and in my original Decision.

II. DETERMINATION OF SANCTIONS

Whether sanctions are appropriate is a highly fact-specific question, and the relevant considerations will vary from case to case. Prior sanction contexts have considered:

- (1) whether the party has performed conduct warranting sanctions;
- (2) whether that conduct has caused harm (to, for example, another party, the proceedings, or the USPTO); and
- (3) whether the potential sanctions are proportionate to the harm.

See, e.g., R.J. Reynolds Vapor Co. v. Fontem Holdings I B.V., IPR2017-01318, Paper 16 at 5, 8 (PTAB Aug. 6, 2018).

I determine that attorney fees are not appropriate in this case. Although VLSI has had its patent claims found unpatentable based on a

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meritorious petition (*see* Paper 129), VLSI has not shown how the conduct at issue in this case, i.e., failure to comply with mandated discovery and misrepresentation of fact and/or misleading argument regarding the exclusive nature of its expert engagement, resulted in harm to VLSI. VLSI argues that if PQA had “made clear it was not interested in protecting the patent system’s integrity . . . , this IPR would have been dead on arrival.” Paper 141, 2. This ignores my determination that the Petition presented compelling merits at the time of institution and that the IPR should continue. *See* Paper 102, 5–6, 62–63. VLSI also argues that if PQA acknowledged that its exclusive engagement with Dr. Singh was waivable, that would have led to denial of PQA’s Petition. Paper 141, 2–3. However, it is speculation to assume that the availability of PQA’s expert to other parties in other proceedings would have led the Board to deny PQA’s Petition. It is likely that, at most, it would have led the Board *not* to deny OpenSky’s substantially identical petition on the ’373 patent, which was denied based on PQA’s representation that OpenSky would have been unable to engage Dr. Singh. *See* Paper 131, 44; Ex. 2016; IPR2021-01056, Paper 18, 5–9, 6; IPR2021-01056, Ex. 2016.⁸

However, a party’s failure to comply with mandated discovery and misrepresentation of fact/misleading arguments is a serious matter that cannot occur without consequence. *See, e.g., Hendler v. United States*, 952 F.2d 1364, 1382 (Fed. Cir. 1991) (observing that noncompliance with an

⁸ PQA makes additional arguments that VLSI has suffered no compensable injury stemming from PQA’s alleged misconduct. *E.g.*, Paper 138, 6. Because I do not assess compensatory expenses, I do not reach these arguments. I also do not reach VLSI’s additional arguments for compensatory expenses.

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order “cannot be condoned”). PQA’s conduct undermined the ability of the Office faithfully to administer the AIA system. Thus, I determine that the appropriate sanction for PQA’s conduct is a strong admonishment. Contrary to VLSI’s suggestion, I anticipate that publicly and strongly admonishing PQA will deter future conduct by PQA and other parties, as well as protect the integrity of AIA proceedings and the patent system. *See Nat’l Hockey League v. Metro. Hockey Club, Inc.*, 427 U.S. 639, 643 (1976) (discovery violation sanctions appropriate “not merely to penalize those whose conduct may be deemed to warrant such a sanction, but to deter those who might be tempted to such conduct in the absence of such a deterrent”).

Further, I note that the sanction in this case is appropriate in view of differences between PQA’s conduct and that of other parties in similar sanctions contexts. *See, e.g., EEOC v. Troy State Univ.*, 693 F.2d 1353, 1357–58 (11th Cir. 1982) (noting differences between party conduct in separate cases in evaluating propriety of sanctions under Federal Rule of Civil Procedure 37); *Hendler*, 952 F.2d at 1382–83 (same); *Mynette Techs., Inc. v. United States*, 163 Fed. Cl. 733, 768 (Dec. 20, 2022) (comparing conduct in determining appropriate sanction). For example, I find that PQA’s conduct, though sanctionable, was less egregious than that of petitioner OpenSky in IPR2021-01064, where OpenSky offered to undermine and/or not vigorously pursue its IPR in exchange for a monetary payment, in addition to discovery violations. *See* IPR2021-01064, Paper 102, 3; *id.*, Paper 127, 2.⁹ VLSI relies heavily on PQA’s motives for filing the underlying petition to justify attorney fees as a sanction (*see* Paper 140,

⁹ This comparison should not be read to define OpenSky’s conduct as the threshold for monetary sanctions.

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2, 8; Paper 141, 3–4), but my sanctions order was not based on such a finding. *See* Paper 131, 37 n.25.

VLSI argues that the award of costs and fees in *Atlanta Gas Light Co. v. Bennett Regulator Guards, Inc.*, IPR2015-00826, Paper 39 (Dec. 6, 2016), for “less egregious offenses” supports the same discretionary sanction here. Paper 140, 7. However, there are key differences between the two situations. In particular, the cited order in *Atlanta Gas* found petitioner Atlanta Gas’s failure to accurately identify all real parties in interest and privies to be sanctionable conduct. *See* IPR2015-00826, Paper 39, 5–6. The Board further found that patent owner Bennett Regulator Guards suffered harm from that conduct and that the sanction of costs and fees was “proportionate to [that] harm.” *Id.* at 8; *see id.* at 6–9. As discussed above, I find that VLSI did not suffer notable harm based upon PQA’s sanctionable conduct here, making the award of attorney fees inappropriate.¹⁰ I, therefore, strongly admonish PQA that its conduct was unbefitting a party before the Office. *See, e.g., Securities & Exchange Comm’n v. Smith*, 798 F. Supp. 2d 412, 442 (N.D.N.Y. 2011) (applying admonishment as sanction where connection between conduct and harm not demonstrated).

It bears emphasizing that PQA’s conduct regarding its arrangement with Dr. Singh was unacceptable. Parties have a duty of candor and good faith before the Office. 37 C.F.R. §§ 42.11. PQA had a written agreement with Dr. Singh but misrepresented the contents of that agreement in its filings, and then took inconsistent approaches to characterizing the contents

¹⁰ Further, Atlanta Gas’s sanctionable conduct ultimately delayed proper application of the one-year time bar set forth in 35 U.S.C. § 315(b) and correct resolution of the proceeding, further distinguishing the offending conduct. *See* IPR2015-00826, Paper 52.

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of the agreement as it suited PQA's arguments. *See* Paper 131, 46–49.

Parties must fully and accurately represent written instruments and written documents so as to give the Office a complete understanding of the facts and so as not to mislead the Office. Here, PQA did not even file a copy of Dr. Singh's engagement until after it had initially characterized it in an incomplete way, and then continued to change its arguments about whether it had an exclusive agreement. Paper 131, 47–48.

It is essential to the administration of justice that courts and agencies can rely on the representations made to them by the parties and their counsel. Factual contentions must have evidentiary support.

Cf. Fed.R.Civ.P. 11. And counsel who draft and sign pleadings are expected to verify their contentions and attest to the compliance with the certification requirements. *See* 37 C.F.R. § 42.11(b)–(c).¹¹ It is necessary for the USPTO to sanction such violations to protect the integrity of its proceedings and the interests of other parties. It bears repeating that the Board relied on PQA's misrepresentations and misleading arguments to deny OpenSky's alternative IPR petition. *See* Paper 131, 45. PQA's misconduct here was thus clearly improper because it had a direct, adverse impact on the USPTO's ability to render timely and accurate IPR decisions. In addition to its misrepresentation, PQA also failed to comply with my mandated discovery. I have already detailed how PQA 1) refused to provide responsive internal documents or a privilege log of withheld responsive documents, and 2) failed to provide good-faith interrogatory responses or

¹¹ This opinion addresses only sanctions imposed against a party. It does not address, nor does it preclude, potential sanctions or discipline against those who practiced before the USPTO on behalf of the party. *See* 37 C.F.R. 11.18(c)(2).

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adequate evidence. Paper 131, 26–40. The proper functioning of any tribunal and legal inquiry demands legitimate participation from the parties. *See, e.g., Taylor v. Illinois*, 484 U.S. 400, 412–13 (“Discovery, like cross-examination, minimizes the risk that a judgment will be predicated on incomplete, misleading, or even deliberately fabricated testimony.”). PQA simply did not do that here. For example, PQA did not answer the interrogatory as to the identity of its members. Paper 131, 30. This is a basic question that has a simple answer; if PQA thought that information was privileged or otherwise confidential, there were mechanisms for it to comply with my discovery order while protecting those interests. But PQA’s decision to simply not respond is not reasonable nor appropriate. In view of the above, PQA is strongly admonished for its failure to comply adequately with mandated discovery.

PQA is further cautioned that future misconduct will be met with additional and likely more significant sanctions. Parties that practice before the Office are expected to comply with mandated discovery and to make accurate representations, consistent with all appropriate duties of candor and good faith. *See* 37 C.F.R. §§ 42.11–42.12.

For the foregoing reasons, it is hereby:

ORDERED that PQA is strongly admonished and cautioned that any future misconduct in this regard will be met with additional sanctions.

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PETITIONER:

Benjamin Fernandez
David Cavanaugh
Yvonne Lee
Steven Horn
WILMER CUTLER PICKERING HALE AND DORR LLP
ben.fernandez@wilmerhale.com
david.cavanaugh@wilmerhale.com
yvonne.lee@wilmerhale.com
steven.horn@wilmerhale.com

Bruce Slayden
Tecuan Flores
Truman Fenton
SLAYDEN GRUBERT BEARD PLLC
bslayden@sgbfirm.com
tflores@sgbfirm.com
tfenton@sgbfirm.com

PATENT OWNER:

Babak Redjaian
IRELL & MANELLA LLP
bredjaian@irell.com

Kenneth J. Weatherwax
Bridget Smith
Flavio Rose
Parham Hendifar
Patrick Maloney
Jason Linger
LOWENSTEIN & WEATHERWAX LLP

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weatherwax@lowensteinweatherwax.com

smith@lowensteinweatherwax.com

rose@lowensteinweatherwax.com

hendifar@lowensteinweatherwax.com

maloney@lowensteinweatherwax.com

linger@lowensteinweatherwax.com

(12) **United States Patent**
Russell et al.

(10) **Patent No.:** **US 7,523,373 B2**
(45) **Date of Patent:** **Apr. 21, 2009**

(54) **MINIMUM MEMORY OPERATING VOLTAGE TECHNIQUE**

(75) Inventors: **Andrew C. Russell**, Austin, TX (US);
David R. Bearden, Austin, TX (US);
Bradford L. Hunter, South Burlington, VT (US); **Shayan Zhang**, Austin, TX (US)

(73) Assignee: **Freescale Semiconductor, Inc.**, Austin, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 294 days.

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(51) **Int. Cl.**
G01R 31/30 (2006.01)

(52) **U.S. Cl.** **714/745**; 713/300; 324/765

(58) **Field of Classification Search** 714/745,
714/721

See application file for complete search history.

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Primary Examiner—Cynthia Britt

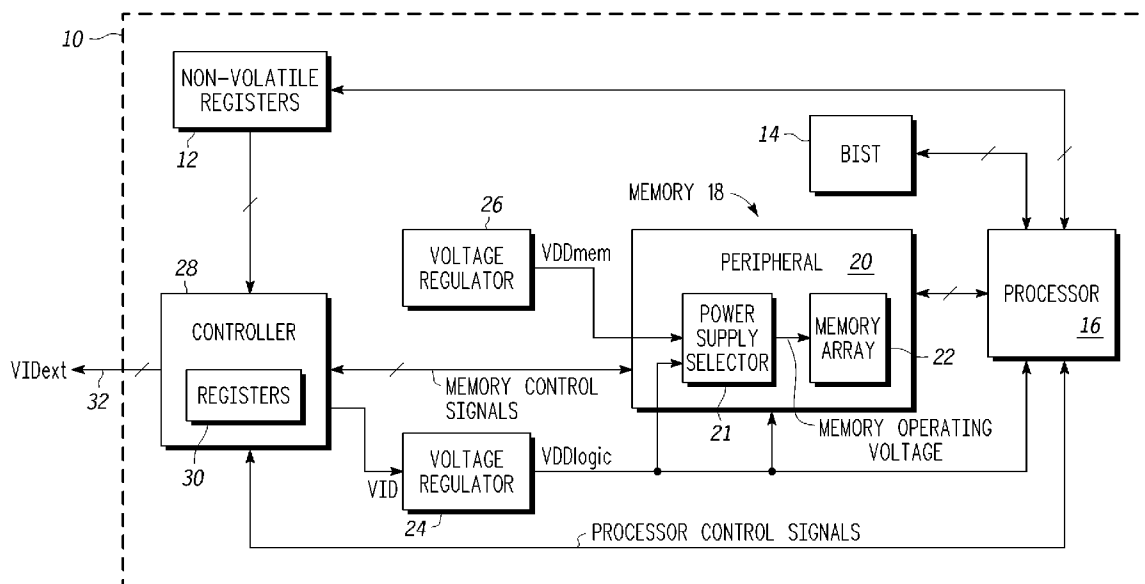
Assistant Examiner—Steve Nguyen

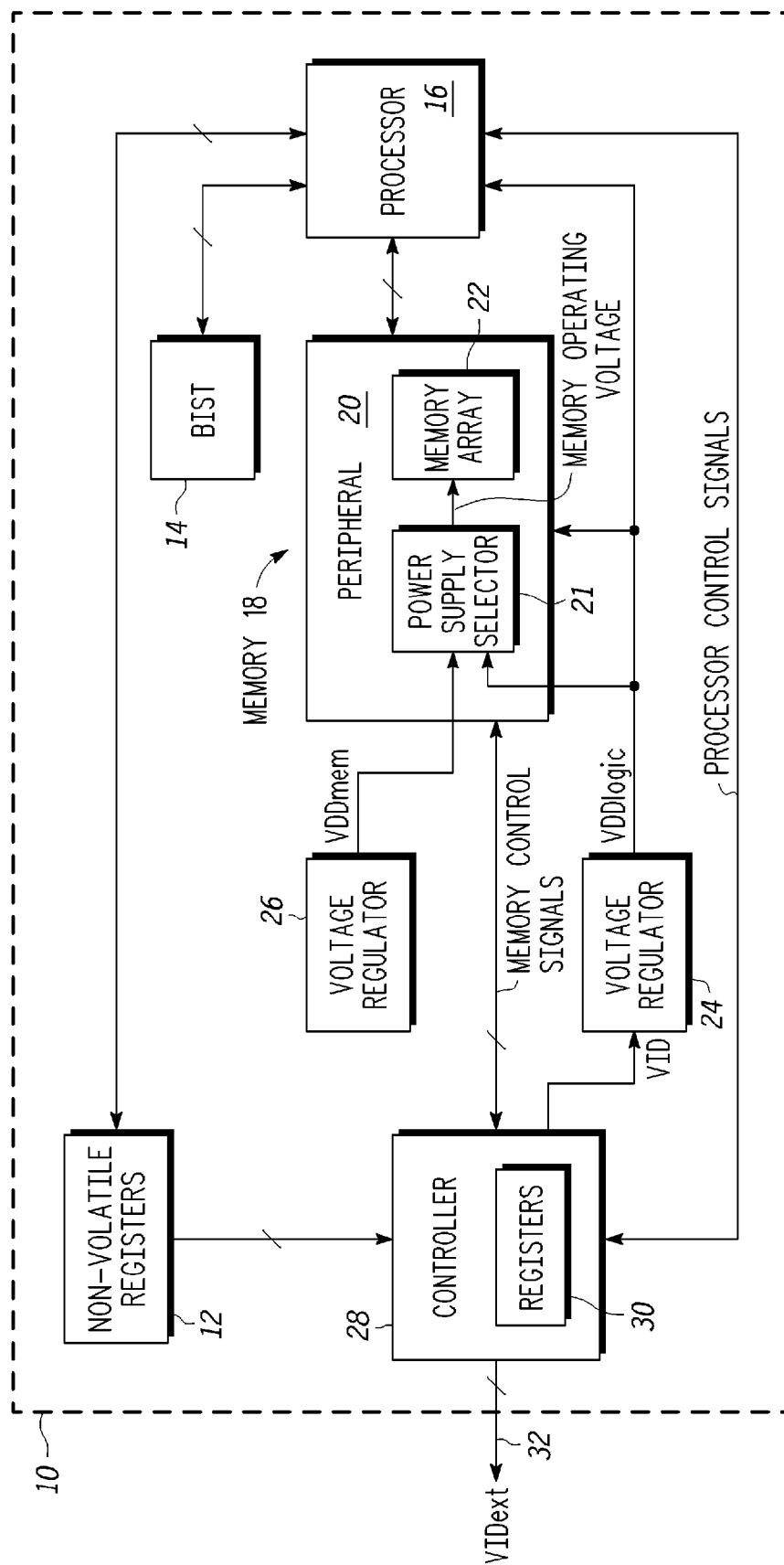
(74) *Attorney, Agent, or Firm*—Joanna G. Chiu; James L. Clingan, Jr.

(57) **ABSTRACT**

A method includes an integrated circuit with a memory. The memory operates with an operating voltage. A value of a minimum operating voltage of the memory is determined. The value of the minimum operating voltage is stored in a non-volatile memory location that maybe a non-volatile register. This minimum operating voltage information can then be used in determining when an alternative power supply voltage may be switched to the memory or ensuring that the minimum voltage is otherwise met. The minimum voltage can be used only internal to the integrated circuit or also provided externally to a user.

16 Claims, 3 Drawing Sheets



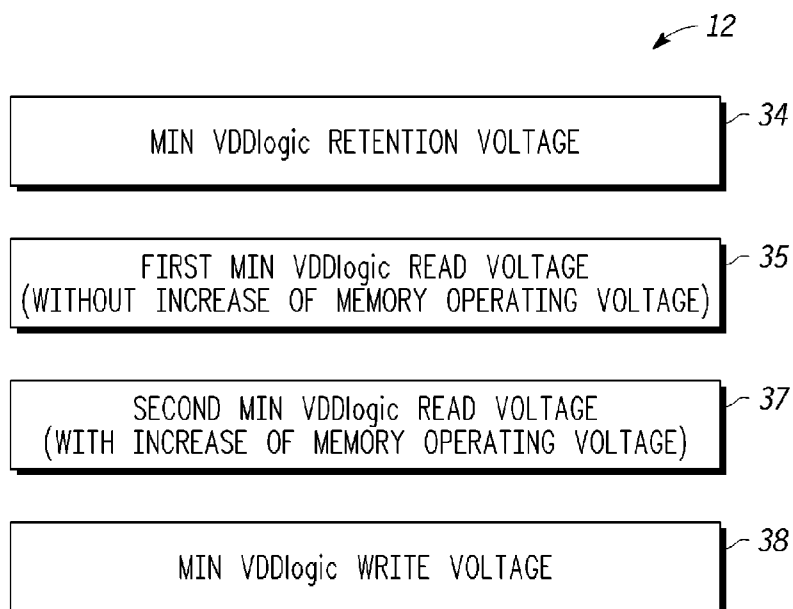
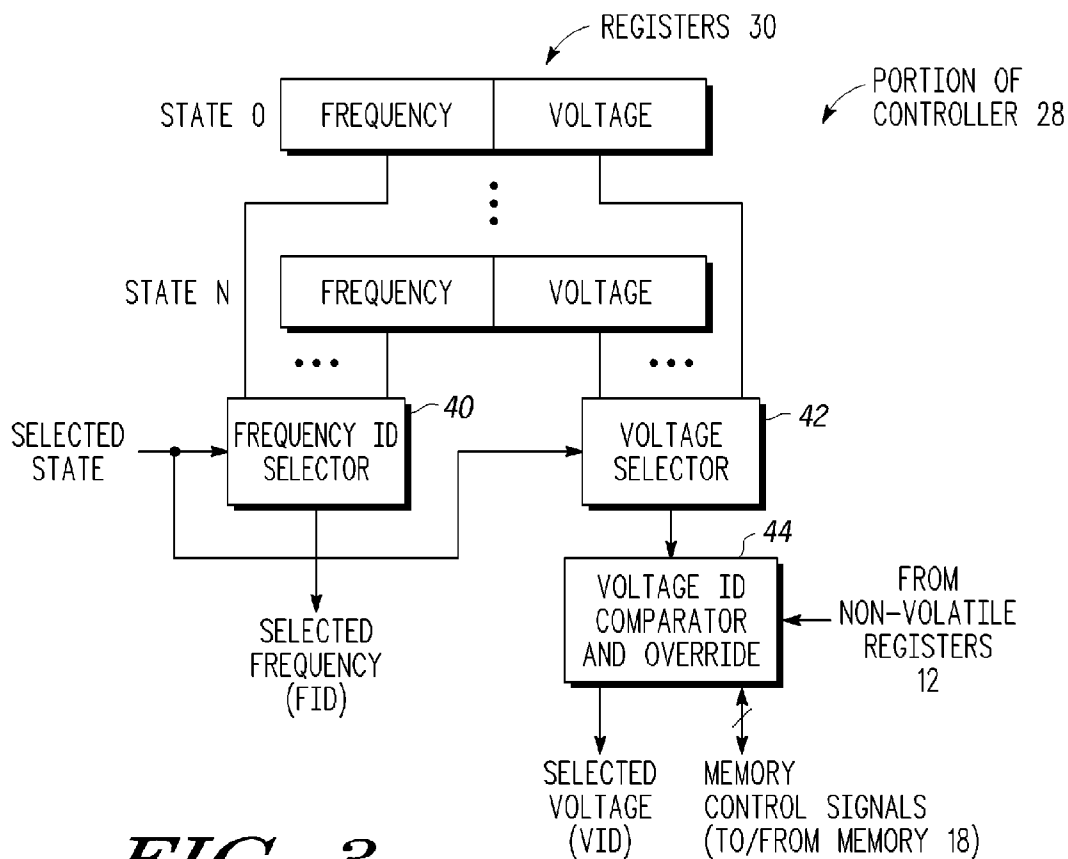
*FIG. 1*

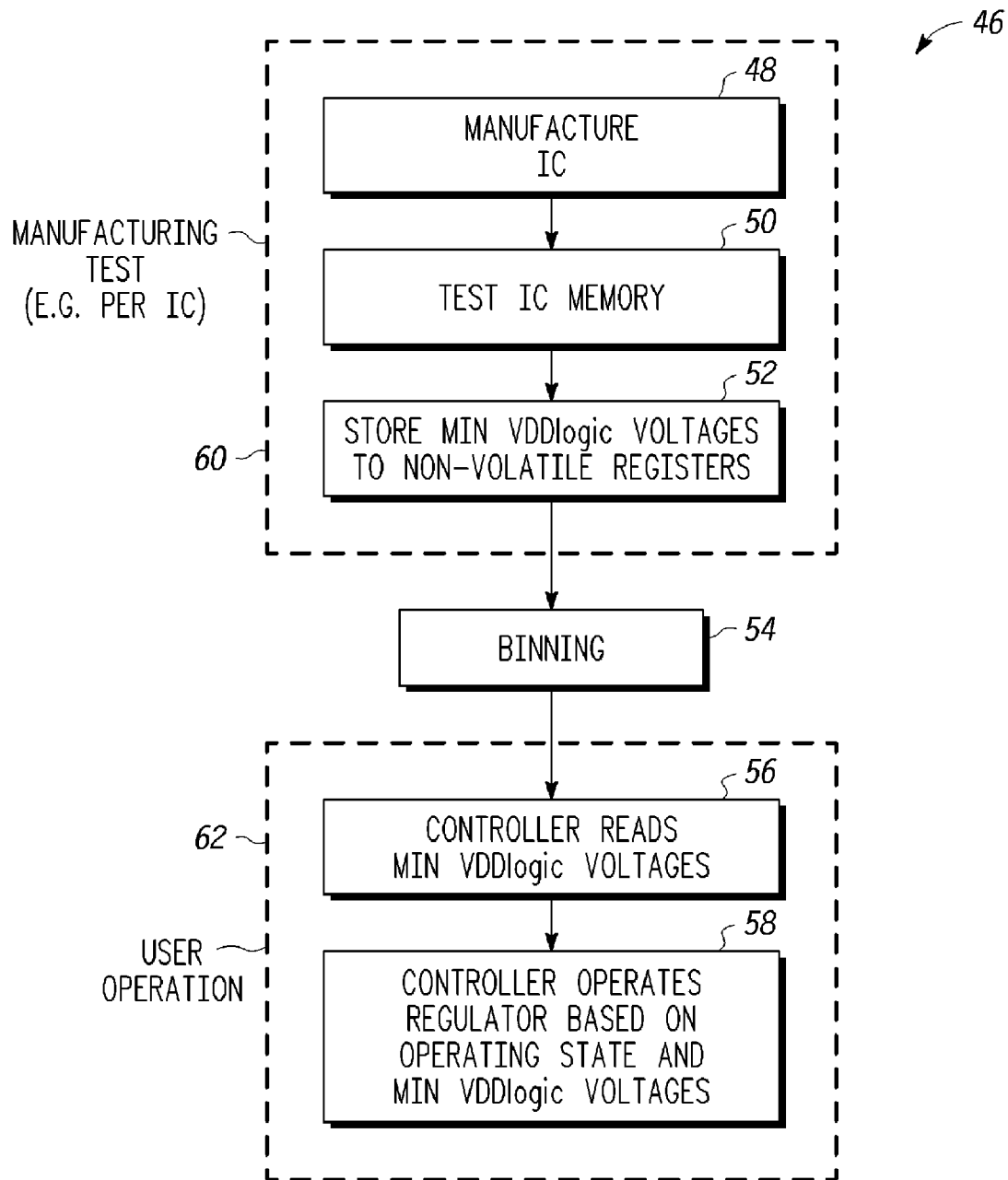
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**FIG. 2****FIG. 3**

**FIG. 4**

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**MINIMUM MEMORY OPERATING VOLTAGE
TECHNIQUE**

FIELD OF THE INVENTION

Embodiments herein relate generally to memories, and more specifically, to a minimum memory operating voltage technique.

RELATED ART

Today, processors are typically able to operate at different voltages and frequencies, depending on the desired performance. For example, processors may operate at maximum voltage and frequency when peak performance is required, and may operate at low voltage and frequency to reduce power consumption. Therefore, tradeoffs can be made between performance and power. Similarly, such tradeoffs between performance and power can be made for other circuitry within data processing systems such as memories. That is, memories may be able to operate at higher voltages to achieve greater speed, and may also operate at lower voltages to save power. However, note that different types of circuitry within a data processing system may have different ranges of allowable operating voltages.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example and is not limited by the accompanying figures, in which like references indicate similar elements.

FIG. 1 illustrates a data processing system in accordance with one embodiment of the present invention.

FIG. 2 illustrates the non-volatile registers of FIG. 1 in accordance with one embodiment of the present invention.

FIG. 3 illustrates a portion of controller 28 in accordance with one embodiment of the present invention.

FIG. 4 illustrates a flow for testing and operating an integrated circuit, such as, for example, the data processing system of FIG. 1, in accordance with one embodiment of the present invention.

Skilled artisans appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been drawn to scale.

For example, the dimensions of some of the elements in the figures may be exaggerated relative to other elements to help improve the understanding of the embodiments of the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

As used herein, the term “bus” is used to refer to a plurality of signals or conductors which may be used to transfer one or more various types of information, such as data, addresses, control, or status. The conductors as discussed herein may be illustrated or described in reference to being a single conductor, a plurality of conductors, unidirectional conductors, or bidirectional conductors. However, different embodiments may vary the implementation of the conductors. For example, separate unidirectional conductors may be used rather than bidirectional conductors and vice versa. Also, plurality of conductors may be replaced with a single conductor that transfers multiple signals serially or in a time multiplexed manner. Likewise, single conductors carrying multiple signals may be separated out into various different conductors carrying subsets of these signals. Therefore, many options exist for transferring signals.

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As discussed above, tradeoffs between power and performance can be made for processors and for memory by varying the operating voltage and frequency. However, in one embodiment, the memory in a data processing system may fail at a higher voltage than the processor. That is, the processor may be able to operate at a lower voltage than is possible for the memory. Therefore, in many embodiments, the memory has a higher minimum operating voltage than the processor. Note that, as used herein, the minimum voltage or minimum operating voltage refers to a minimum which takes into consideration factors such as, for example, temperature. That is, there may be situations where the memory may actually be able to work at a voltage lower than the minimum voltage depending on, for example, factors such as temperature.

Furthermore, this minimum operating voltage for a memory varies across parts, such that one integrated circuit (IC) may tolerate one minimum operating voltage while another IC may be able to tolerate even a lower operating voltage, depending on the worst case bitcell present in each IC. Therefore, setting a particular minimum operating voltage for a type of memory, such as for a range of parts, which takes into consideration a worst case scenario for all the parts may be unnecessarily giving up the possibility for some parts to be qualified to operate at even lower voltages if those particular parts have, for example, more robust bitcells, none of which fall into the worst case scenario. Therefore, in one embodiment, each particular part, or IC, is tested to determine values for one or more minimum operating voltages, and these values of the one or more operating voltages are then stored in non-volatile memory locations on the part, such as through the use of non-volatile registers or fuses. These programmed non-volatile memory locations may then be used, for example, to bin the parts differently, control voltage during operation of the IC, etc.

FIG. 1 illustrates a block diagram of a data processing system 10 in accordance with one embodiment of the present invention. System 10 includes a processor 16, built-in test (BIST) circuitry 14, a memory 18, non-volatile registers 12, a controller 28, and voltage regulators 24 and 26. Processor 16 is bidirectionally coupled to non-volatile registers 12, BIST 14, memory 18, and controller 28. Memory 18 may be any type of memory, such as, for example, a static random access memory (SRAM), a dynamic random access memory (DRAM), etc. Memory 18 may be located external to processor 16, as illustrated, or may be located within processor 16. Memory 18 may be, for example, a cache, an embedded memory, or a stand alone memory. Memory 18 includes a memory array 22 which includes an array of bitcells which stores information. Memory 18 also includes a power supply selector 21 which receives VDDmem and VDDlogic and provides one of these to memory array 22 as the memory operating voltage. Power supply selector 21 selects one of VDDmem and VDDlogic based on information provided by controller 28 via, for example, the memory control signals. Note that in an alternate embodiment, power supply selector 21 may be located outside memory 18. In yet another embodiment, power supply selector 21 is not present and memory 18 is permanently coupled to VDDlogic or VDDmem. Memory 18 also includes periphery circuitry 20 which includes the circuitry used to read and write memory array 22. For example, periphery 20 may include row and column decoders, sense amplifiers, etc. In the illustrated embodiment, periphery 20 is coupled to receive VDDlogic as its power supply. Memory 18 can be any type of memory which oper-

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ates as known in the art, and therefore, will only be discussed to the extent necessary to understand various embodiments of the present invention.

Controller 28 provides memory control signals to memory 18 and processor control signals to processor 16. Controller 28 also provides a voltage identifier (VID) to voltage regulator 24 which corresponds to a desired voltage for the output of voltage regulator 24 (e.g. VDDlogic). Controller 28 may also provide one or more external voltage identifiers (VIDext) via integrated circuit terminals 32. In an alternate embodiment, integrated circuit terminals 32 coupled to controller 28 may not be present, where controller 28 would not provide voltage identifiers externally. Controller 28 includes registers 30 which may be used to store voltage and frequency states of processor 16. For example, in one embodiment, controller 28 may include a dynamic voltage and frequency scaling (DVFS) controller, where registers 30 includes various DVFS states, each state indicating a particular voltage and corresponding frequency, as will be described in more detail in reference to FIG. 3 below.

Voltage regulator 26 provides a substantially fixed power supply voltage, VDDmem, to power supply selector 21 of memory 18. Voltage regulator 24, in response to VID, provides a power supply voltage, VDDlogic, to processor 16 and memory 18 (including both periphery 20 and power supply selector 21), where the value of VDDlogic is scalable, as controlled by the VID output of controller 28. In one embodiment, VDDmem is greater than VDDlogic. Alternatively, VDDmem may be greater than or equal to VDDlogic.

In one embodiment, while VDDlogic remains above a minimum operating voltage required for successful reads of memory array 22, power supply selector 21 selects VDDlogic as the memory operating voltage provided to memory array 22, such that the memory operating voltage is substantially equal to VDDlogic. When VDDlogic is scaled to a voltage that is below the minimum memory operating voltage required for reads, power supply selector 21 selects the higher voltage, VDDmem, during read cycles to ensure that reads can still be successfully performed. In this manner, the memory operating voltage provided to memory array 22 is increased when needed to ensure successful reads (while power supply selector 21 may continue to provide the scaled down VDDlogic to memory array 22 when reads are not occurring). However, note that in one embodiment, VDDlogic may be scaled down even lower to a voltage that, even with power supply selector 21 selecting the higher VDDmem, memory 18 would no longer perform reads properly. For example, the differential between this further scaled down VDDlogic and the higher VDDmem may be so great that switching from VDDlogic to VDDmem by power supply selector 21 would result in deleterious effects, such as bit flipping where the data stored in memory array 22 is no longer accurate.

Also, in the illustrated embodiment, when VDDlogic is scaled to a voltage that is below the minimum operating voltage required for writes, write cycles cannot successfully be performed. In an alternate embodiment, another voltage regulator, similar to voltage regulator 26, may be used to provide a substantially fixed power supply output (e.g. VDDmem-write) that is less than VDDlogic and which can be used during write cycles to help perform the write. In this embodiment, power supply selector 21 would select the lower voltage, VDDmem-write, during write cycles, as needed. For example, in this alternate embodiment, when VDDlogic is scaled to a voltage that is below the minimum operating voltage required for writes, power supply selector selects the lower voltage, VDDmem-write, during the write cycles to

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ensure that writes can still be successfully performed, since a lower memory operating voltage is helpful for write cycles. In this manner, the memory operating voltage provided to memory array 22 can be decreased when needed to ensure successful writes (while power supply selector 21 may continue to provide the scaled down VDDlogic to memory array 22 when writes are not occurring). Also, VDDlogic may be scaled down even lower to a voltage that, even with power supply selector 21 selecting the lower VDDmem-write to help the write cycle, memory 18 would no longer be able to perform writes properly.

Therefore, note that different types of thresholds can be defined for memory array 22. For example, a first minimum VDDlogic read voltage may indicate the minimum VDDlogic voltage where memory array 22 can perform reads using VDDlogic rather than VDDmem. Also, a second minimum VDDlogic read voltage, which is a lower minimum than the first VDDlogic read voltage, may indicate the minimum VDDlogic voltage where memory array 22 can perform reads, even if there is a switch to the higher VDDmem. That is, when VDDlogic falls below the second minimum VDDlogic voltage, not even a switch to VDDmem may ensure proper read operations. In an alternate embodiment, note that only a single minimum VDDlogic read voltage may be indicated, such as in the case where an increase to VDDmem is not available. Also, a minimum VDDlogic write voltage may indicate the minimum VDDlogic voltage at which memory array 22 can perform write operations. In one embodiment (in which VDDmem-write, as described above, is available) first and second minimum VDDlogic write voltages can be defined, where the first minimum VDDlogic write voltage may indicate the minimum memory operating voltage allowed for writes without a decrease of the memory operating voltage to VDDmem-write and the second minimum VDDlogic write voltage (less than the first minimum VDDlogic write voltage) may indicate the minimum memory operating voltage allowed for writes even with a decrease of the memory operating voltage to VDDmem-write. Also, note that there is a minimum data retention voltage such that if the memory operating voltage falls below this minimum data retention voltage, the data in memory array 22 may be lost. Furthermore, note that there may be a minimum standby voltage for memory array 22 which represents a minimum operating voltage allowable for memory array 22 during standby.

In alternate embodiments, other types of minimum read or write operating voltages can be defined for memory array 22. For example, in addition to the first and second minimum VDDlogic read voltages described above, other minimum read voltages may be defined such as a third minimum VDDlogic read voltage indicating the minimum voltage where memory array 22 can perform reads using VDDlogic rather than VDDmem when error correction code (ECC) is used. In this case, this third minimum VDDlogic read voltage (without increasing the memory operating voltage to VDDmem but with the use of ECC) may be less than the first minimum VDDlogic read voltage (without increasing the memory operating voltage to VDDmem and without the use of ECC) but greater than the second minimum VDDlogic read voltage (with increasing the memory operating voltage to VDDmem and without ECC). That is, by enabling ECC, a lower minimum read voltage may be acceptable for proper reads due to the use of ECC. Also, in addition to the first, second, and third minimum VDDlogic read voltages described above, a fourth minimum VDDlogic read voltage may be defined which indicates the minimum VDDlogic read voltage where memory array 22 can perform reads, even with

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a switch to VDDmem and the use of ECC. In one embodiment, this fourth minimum read voltage is less than the first, second, and third minimum VDDlogic read voltages described above.

Similarly, note that the same type of minimum voltages which take into consideration the use of ECC can be defined for the minimum write voltages described above. That is, rather than defining a single minimum VDDlogic write voltage below which writes cannot be performed (as was described in reference to FIG. 1), an alternate embodiment may instead use the first and second minimum VDDlogic write voltages described above, and may additionally use third and fourth minimum VDDlogic write voltages where ECC is also used, as was described in reference to the read voltages above.

Therefore, note that, as used herein, a minimum read voltage of memory array 22 can refer to a single minimum VDDlogic read voltage below which reads cannot be successfully performed, or may refer to one or more different types of minimum VDDlogic read voltages, such as, for example, those described above (e.g. the first, second, third, fourth minimum VDDlogic read voltages, other minimum VDDlogic read voltages, or combinations thereof). Similarly, a minimum write voltage of memory array 22 can refer to a single minimum VDDlogic write voltage below which writes cannot be successfully performed, or may refer to one or more different types of minimum VDDlogic write voltages, such as, for example, those described above (e.g. the first, second, third, fourth minimum VDDlogic write voltages, other minimum VDDlogic write voltages, or combinations thereof). Similarly, in alternate embodiments, minimum read and write voltages may be defined which indicate different minimums depending on various other types of conditions. Also, in alternate embodiments, minimum read voltages can be combined with minimum write voltages, such that a same minimum voltage can be used for both reads and writes. Also, note that as used herein, a minimum operating voltage of memory array 22 can refer to any one or more of the minimum read, write, retention, or standby voltages (or combinations thereof) described above.

In one embodiment, controller 28 indicates to power supply selector 21 which power supply to select, VDDmem or VDDlogic (or, if available, VDDmem-write), by monitoring the VDDlogic VID selected within controller 28 (which will be described in more detail in reference to FIG. 3) and corresponds to the desired value for VDDlogic, and determining when the VDDlogic VID indicates a voltage that is below any of the minimum VDD logic voltages described above. Also, in one embodiment, a signal may be provided by controller 28 in response to the selected VDDlogic VID being below one or more of the minimum read or write operating voltages described above.

In the illustrated embodiment, when VDDlogic is to fall below the first minimum operating voltage, power supply selector 21 selects the higher voltage, VDDmem, to increase the memory operating voltage provided to memory array 22 during reads. However, in an alternate embodiment, VDDlogic may be boosted during reads through the use of a charge pump, where this boosted VDDlogic is provided to memory array 22 for reads. In yet another embodiment, VDDmem can be provided to memory array 22 always as the memory operating voltage, where VDDmem may also be scalable such that it may be scaled down, under the control, for example, of controller 28, to conserve power when possible (such as when it is known that reads will not be performed for a period of time).

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In alternate embodiments, note that system 10 may include any number of voltage regulators used to output various different supply voltages for use by different circuitry, such as, for example, by different voltage domains within system 10 or processor 16. Alternatively, voltage regulators 24 and 26 can be implemented as a single voltage regulator with multiple outputs. Also, in the illustrated embodiment, data processing system 10 is implemented as a single IC. However, in alternate embodiments, any number of ICs may be used. For example, in one embodiment, voltage regulators 24 and 26 may be implemented with one or more separate ICs. One or more memories such as memory 18 can also be implemented with one or more separate ICs. Processor 16 may be any type of processor such as, for example, a microcontroller, micro-processor, digital signal processor, etc., and operates as known in the art. Therefore, operation of processor 16 will only be discussed to the extent necessary to describe various embodiments of the present invention. Alternatively, processor 16 may be any type of functional circuit in system 10. In one embodiment, the functional circuit is exclusive of memory 18.

As described above, memory 18 has one or more minimum operating voltages, as was described above in reference to, for example, the first and second minimum VDDlogic read voltages, the minimum VDDlogic write voltage, and the minimum data retention voltage. Due to variations in manufacturing, though, these minimum operating voltages of a memory may differ across a range of parts. Therefore, one memory may have different minimum operating voltages as compared to another memory on a different IC. Therefore, in one embodiment, these minimum operating voltages are determined for each part and stored in non-volatile registers on each part. For example, in one embodiment, memory 18 is tested to determine the minimum operating voltages and these voltages or values representative of these voltages are then stored in non-volatile registers 12.

For example, referring to FIG. 1, BIST 14 may include any type of circuitry to perform any type of built-in self test. In one embodiment, BIST 14 includes circuitry used to test for minimum operating voltages for memory 18. For example, BIST 14 may include circuitry to determine one or more of the minimum operating voltages discussed above. BIST 14 may also include other circuitry for determining other types of minimum operating voltages or other parameters. BIST 14 may return these values to processor 16 which may then provide these values to be written to non-volatile registers 12.

FIG. 2 illustrates one embodiment of non-volatile registers 12. The embodiment of FIG. 2 includes one or more registers which store a minimum VDDlogic retention voltage 34 and a first minimum VDDlogic read voltage 35 (without the increase of the memory operating voltage). Note that the minimum VDDlogic read voltage 35 (without the increase of the memory operating voltage) refers to the minimum voltage VDDlogic should have (within normal margins) in order for reads to be performed successfully. Note also that as long as VDDlogic is at or above this minimum voltage, the memory operating voltage need not be increased to the higher VDDmem, as was described above. That is, so long as VDDlogic is at or above this minimum voltage, VDDlogic can be provided as the memory operating voltage.

Note that first minimum VDDlogic read voltage 35 may also be referred to as a minimum read memory operating voltage. That is, while VDDlogic remains above the first minimum VDDlogic read voltage, the memory operating voltage is substantially equal to VDDlogic. The first minimum VDDlogic read voltage 35 may also be referred to as a minimum switching voltage since these values can be used to

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determine when a switch is to be performed from one regulated power supply (e.g. VDDlogic) to another regulated power supply (e.g. VDDmem).

In the illustrated embodiment of FIG. 2, non-volatile registers 12 also store a second minimum VDDlogic read voltage 37 (with the increase of the memory operating voltage). As was described above in reference to FIG. 1, there is a point where VDDlogic may be scaled down to such a level that even with power supply selector 21 selecting the higher VDDmem, operation of memory 18 may still fail. For example, this may be due to the large differential in voltage values between the scaled down VDDlogic and the higher VDDmem. Therefore, in one embodiment, BIST 14 may also include circuitry to determine these minimums, and processor 16 may therefore also store these minimums in non-volatile registers 12.

In the illustrated embodiment of FIG. 2, non-volatile registers 12 also store a minimum VDDlogic write voltage 38 which, as described above, can refer to the minimum voltage VDDlogic must have (within normal margins) in order for writes to be performed successfully. Note that minimum VDDlogic write voltage 38 may also be referred to as the minimum write memory operating voltage. In an alternate embodiment, non-volatile registers 12 can instead include a first and a second minimum VDDlogic write voltage (corresponding to minimum VDDlogic write voltages without or with a decrease to VDDmem-write, respectively). In this alternate embodiment, note that the first minimum VDDlogic write voltage can also be referred to as a minimum write memory operating voltage or a minimum switching voltage, for reasons analogous to those provided above with respect to first minimum VDDlogic read voltage 35.

Note that in the example of FIG. 2, separate read and write voltages are provided; however, they may be combined such that a same or single minimum is set for both reads and writes. Also, note that any number of non-volatile registers may be used. Furthermore, any number of minimum operating voltages or other operating parameters of memory 18 may be included. For example, in one embodiment, second minimum voltage 37 may not be present, or other minimum operating voltages, such as a minimum standby voltage or those that were described above in reference to the use of ECC, may be present. Also, minimums for various different memories present within a system may be stored into non-volatile registers 12. In one embodiment, encoded versions of the minimum voltages (i.e. VID's for each minimum voltage) may be stored instead where encoded versions of the operating voltages (e.g. VDDlogic VID's) are monitored. In one embodiment, non-volatile registers 12 may be implemented as programmable fuses. Alternatively, they may be implemented as volatile registers. For example, in one embodiment, the volatile registers may store minimum operating voltages that represent the worst case across a group of parts.

Also, note that there may be other ways to determine these minimum values stored into non-volatile registers 12. That is, BIST 14 may not be present, or, even if present, BIST 14 may not perform the determination of the minimum operating voltages. In an alternate embodiment, an external tester may be used to apply a testing protocol external from system 10 during or after manufacture of system 10 to determine the minimum operating voltages. That is, other testing circuitry, either internal to system 10 or external to system 10, may be used to determine these values. In yet another alternate embodiment, different types of algorithms may be used to determine these values for each memory (i.e. for each IC or part).

In one embodiment, regardless of whether BIST 14 is used or another tester is used, the determination of the minimum

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operating voltages is made specifically for memory 18 (and may be made specifically for any number of memories that may be present in system 10). That is, each memory can be separately characterized with these minimum operating voltages which may allow, for example, for improved binning, for improved customer control, etc. By making the determination specifically per memory (i.e. per part or IC), a user or customer does not need to assume and plan for a worst case scenario across all parts because they may have one or more parts that actually works better. That is, by binning according to the worst case scenario, a particular part may be restricted from use even though that particular part is capable of operating at a voltage below what binning allows. Other examples of how to make use of the information in non-volatile registers 12 will be discussed in reference to FIGS. 3 and 4.

FIG. 3 illustrates one embodiment of a portion of controller 28. Registers 30 includes N+1 registers, each corresponding to a voltage/frequency state. That is, a corresponding encoded frequency and voltage is provided for each of state 0 through state N (where each of state 0 through N may be referred to as a DVFS state). Controller 28 may provide a selected state signal to select a DVFS state (where controller 28 may provide this signal based on a state selected by processor 16). The selected state signal is provided to frequency selector 40 to select one of the N+1 states, such that the selected frequency is provided by frequency selector 40. The selected state signal is also provided to voltage selector 42 such that voltage selector 42 provides the corresponding selected encoded voltage to a comparator and override 44. Therefore, the frequency and voltage states selected by the selected state signal correspond to the desired frequency and voltage. For example, the selected voltage state corresponds to the desired voltage value for VDDlogic. Comparator and override 44 uses the information stored in non-volatile registers 12 to determine if the selected voltage value output by voltage selector 42 (i.e. the desired voltage value for VDDlogic) is appropriate for memory 18. For example, if the selected voltage value is below second minimum read voltage 37 or minimum write voltage 38, operation of memory 18 may fail. In this case, comparator and override 44 may force a different voltage selection that remains above the appropriate minimum voltage. Therefore, controller 28 may adjust VID accordingly to prevent regulator 24 from outputting the desired voltage selected by the selected state signal. Therefore, while the selected frequency may remain low, the corresponding selected low voltage is overridden to help ensure continued proper operation of memory 18.

Similarly, comparator and override 44 can use first minimum VDDlogic read voltage 35 to determine whether an increase to VDDmem is needed. That is, if the voltage selected by voltage selector 42 in response to the selected state signal indicates a voltage that is less than first minimum VDDlogic read voltage 35 (but still greater than second minimum VDDlogic read voltage 37), comparator and override 44 can send a signal to power supply selector 21 (via the memory control signals) to indicate to power supply selector 21 to select VDDmem rather than VDDlogic to provide as the memory operating voltage to memory array 22. In an alternate embodiment in which VDDmem-write is also used (along with first and second minimum VDDlogic write voltages), comparator and override 44 can send a signal to power supply selector 21 to indicate when a switch from VDDlogic to VDDmem-write is needed. Therefore, comparator and override 44 can adjust or override the selected voltage VID to control VDDlogic as needed, as well as signal to power supply selector 21 when a switch in power supply voltages is needed. Comparator and override 44 can make these adjust-

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ments or send these signals in response to comparing the selected or desired voltage with one or more of the various minimum operating voltages that are stored in non-volatile registers 12.

FIG. 4 illustrates a flow 46 which may be used to determine and use the minimum operating voltages of FIG. 2. For example, flow 46 includes a manufacturing test portion 60 which is performed per part (i.e. per IC), and includes a user operation portion 62. Manufacturing test portion 60 includes manufacturing the IC (block 48) and testing the IC memory (block 50). For example, as discussed above, this may be performed by BIST 14 or some other tester or method of testing. Manufacturing test portion 60 also includes storing the values of the minimum VDDlogic voltages or values representative of the actual values, determined by the IC testing performed in block 50, to the non-volatile registers of the IC being tested, such as non-volatile registers 12, (block 52). In one embodiment, the minimum VDDlogic voltages can be determined per a group of parts or ICs. For example, testing can be performed on a representative IC of a particular lot, where those values are stored in the non-volatile registers of each IC in the lot.

After manufacturing test portion 60, the stored values may be used for improved power binning. For example, the tested ICs may be binned according to finer power or speed bins since each part is tested individually for the minimum VDDlogic voltages. Furthermore, a customer can be given more precise information about each specific IC as opposed to relying on a global set of worst case minimums.

After binning 54, flow 46 enters user operation portion 62. User operation portion 62 includes using a controller (such as controller 28) to read the minimum VDDlogic voltages (in block 56) and operating a regulator (such as regulator 26) based on an operating state (such as one of state 0 to N) and on the minimum VDDlogic voltages (in block 58). That is, as was described in reference to FIG. 3, controller 28 may control regulator 24 based on both the selected state of state 0 to N and the information stored in non-volatile registers 12. For example, controller 28 may use the information stored in non-volatile registers 12 to selectively override all or a portion of the selected state.

By now it should be appreciated that there has been provided a technique for determining and storing specific minimum operating voltages for each IC. In this manner, by determining and storing this information unique to each IC (i.e. by separately characterizing each IC), an IC may be operated at its lowest voltage. For example, by binning according to the worst case scenario, an IC may be restricted from use even though a particular IC or part is capable of operating at a voltage below what binning allows. This can be addressed by determining and storing information unique to each IC, as discussed above. Also, with the stored information, the increase of the memory operating voltage (such as from VDDlogic to VDDmem, as was described above), may be performed only when needed by using the stored first minimum values as triggering points for increasing the memory operating voltage rather than relying on a global value (i.e. a value that is common to all ICs). For example, if global values are relied on rather than the particular values determined for each IC, a power selector may switch to a higher power supply voltage (such as VDDmem) when it really was not necessary because the particular IC may have been able to operate properly at the lower voltage, thus unnecessarily consuming power. Furthermore, the decision to increase the memory operating voltage can also be made without a user's knowledge or intervention.

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In one embodiment, a method includes providing an integrated circuit with a memory, operating the memory with an operating voltage, determining a value of a minimum operating voltage of the memory, providing a non-volatile memory (NVM) location, and storing the value of the minimum operating voltage of the memory in the NVM location.

In a further embodiment, the step of testing the memory is further characterized by the minimum operating voltage comprising one of a group consisting of minimum retention voltage, minimum write voltage, minimum read voltage, and a minimum standby voltage.

In another further embodiment, the step of providing the integrated circuit with the memory is further characterized by the memory comprising one of a group consisting of dynamic random access memory and static random access memory.

In another further embodiment, the step of providing the NVM location is further characterized by the NVM location comprising a non-volatile register.

In another further embodiment, the method further includes providing a functional circuit on the integrated circuit exclusive of the memory, providing a first regulated voltage to the functional circuit, providing a second regulated voltage, and providing the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the value of the minimum operating voltage and the second regulated voltage as the operating voltage of the memory when the first regulated voltage is less than the value of the minimum operating voltage. In yet a further embodiment, the method further includes determining a value of a minimum switching voltage of the first regulated voltage for switching from the first regulated voltage to the second regulated voltage in response to the first regulated voltage going below the minimum operating voltage, and storing the value of the minimum switching voltage in the NVM location. In yet a further embodiment, the method further includes providing a signal in response to a desired value for the first regulated voltage being below the minimum operating voltage.

In another further embodiment, the method further includes providing a controller on the integrated circuit that selects an operating value for the operating voltage of the memory, and providing the operating voltage to the memory at a value at least as great as the minimum operating voltage in response to the operating value selected by the processor being below the minimum operating voltage.

In another further embodiment, the method further includes providing the value of the minimum operating voltage external to the integrated circuit.

In another further embodiment, the step of determining is further characterized as performing a test applied externally from the integrated circuit.

In another embodiment, an integrated circuit includes a memory that operates using an operating voltage, wherein the memory is characterized as having a minimum operating voltage, and a memory location that stores a value representative of the minimum operating voltage.

In a further embodiment of the another embodiment, the integrated circuit further includes a first voltage regulator for supplying a first regulated voltage, a circuit that provides a function and uses the first regulated voltage, a second voltage regulator for supplying a second regulated voltage, and a power supply selector that supplies the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the minimum operating voltage and supplies the second regulated voltage as the operating voltage when the first regulated voltage is below the minimum operating voltage. In yet a further embodiment of the another

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embodiment, the circuit that provides a function includes a processor, and the integrated circuit further includes a built-in self test (BIST) circuit, coupled to the processor, useful in determining the minimum operating voltage. In another yet further embodiment, the memory is further characterized as having a value of a minimum switching voltage of the first regulated voltage for switching from the first regulated voltage to the second regulated voltage in response to the first regulated voltage going below the minimum operating voltage, and the memory location is further characterized as storing the value of the minimum switching voltage.

In another further embodiment of the another embodiment, the minimum operating voltage comprises one of a group consisting of minimum retention voltage, minimum read voltage, minimum write voltage, and minimum standby voltage. In yet a further embodiment, the minimum operating voltage comprises another one of the group consisting of minimum retention voltage, minimum read voltage, minimum write voltage, and minimum standby voltage.

In another further embodiment of the another embodiment, the memory comprises one of a group consisting of a static random access memory and a dynamic random access memory.

In another further embodiment of the another embodiment, the integrated circuit includes a processor that selects an operating value for the operating voltage of the memory, and means for providing the operating voltage to the memory at a value at least as great as the minimum operating voltage in response to the operating value selected by the processor being below the minimum operating voltage.

In another further embodiment of the another embodiment, the memory location is characterized as being a non-volatile register.

In yet another embodiment, a method includes providing an integrated circuit with a memory that uses an operating voltage, testing the memory to determine the operating voltage of the memory that is a minimum operating voltage, and storing, in a non-volatile manner, the value of the minimum operating voltage.

In a further embodiment of the yet another embodiment, the method further includes providing a functional circuit on the integrated circuit exclusive of the memory, providing a first regulated voltage to the functional circuit, providing a second regulated voltage, and providing the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the value of the minimum operating voltage and the second regulated voltage as the operating voltage of the memory when the first regulated voltage is less than the value of the minimum operating voltage.

Because the apparatus implementing the present invention is, for the most part, composed of electronic components and circuits known to those skilled in the art, circuit details will not be explained in any greater extent than that considered necessary as illustrated above, for the understanding and appreciation of the underlying concepts of the present invention and in order not to obfuscate or distract from the teachings of the present invention.

Some of the above embodiments, as applicable, may be implemented using a variety of different data processing systems. For example, although FIG. 1 and the discussion thereof describe an exemplary data processing system architecture, this exemplary architecture is presented merely to provide a useful reference in discussing various aspects of the invention. Of course, the description of the architecture has been simplified for purposes of discussion, and it is just one of many different types of appropriate architectures that may be used in accordance with the invention. Those skilled in the art

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will recognize that the boundaries between logic blocks are merely illustrative and that alternative embodiments may merge logic blocks or circuit elements or impose an alternate decomposition of functionality upon various logic blocks or circuit elements.

Furthermore, those skilled in the art will recognize that boundaries between the functionality of the above described operations are merely illustrative. The functionality of multiple operations may be combined into a single operation, and/or the functionality of a single operation may be distributed in additional operations. Moreover, alternative embodiments may include multiple instances of a particular operation, and the order of operations may be altered in various other embodiments.

In the foregoing specification, the invention has been described with reference to specific embodiments. However, one of ordinary skill in the art appreciates that various modifications and changes can be made without departing from the scope of the present invention as set forth in the claims below. Accordingly, the specification and figures are to be regarded in an illustrative rather than a restrictive sense, and all such modifications are intended to be included within the scope of the present invention.

Benefits, other advantages, and solutions to problems have been described above with regard to specific embodiments. However, the benefits, advantages, solutions to problems, and any element(s) that may cause any benefit, advantage, or solution to occur or become more pronounced are not to be construed as a critical, required, or essential feature or element of any or all the claims. As used herein, the terms “comprises,” “comprising,” or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a process, method, article, or apparatus that comprises a list of elements does not include only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus.

The term “plurality”, as used herein, is defined as two or more than two. The term another, as used herein, is defined as at least a second or more.

The term “coupled”, as used herein, is defined as connected, although not necessarily directly, and not necessarily mechanically.

Because the above detailed description is exemplary, when “one embodiment” is described, it is an exemplary embodiment. Accordingly, the use of the word “one” in this context is not intended to indicate that one and only one embodiment may have a described feature. Rather, many other embodiments may, and often do, have the described feature of the exemplary “one embodiment.” Thus, as used above, when the invention is described in the context of one embodiment, that one embodiment is one of many possible embodiments of the invention.

Notwithstanding the above caveat regarding the use of the words “one embodiment” in the detailed description, it will be understood by those within the art that if a specific number of an introduced claim element is intended in the below claims, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such limitation is present or intended. For example, in the claims below, when a claim element is described as having “one” feature, it is intended that the element be limited to one and only one of the feature described.

Furthermore, the terms “a” or “an”, as used herein, are defined as one or more than one. Also, the use of introductory phrases such as “at least one” and “one or more” in the claims should not be construed to imply that the introduction of another claim element by the indefinite articles “a” or “an”

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limits any particular claim containing such introduced claim element to inventions containing only one such element, even when the same claim includes the introductory phrases “one or more” or “at least one” and indefinite articles such as “a” or “an.” The same holds true for the use of definite articles.

What is claimed is:

1. A method, comprising:

providing an integrated circuit with a memory;
operating the memory with an operating voltage;
determining a value of a minimum operating voltage of the memory;

providing a non-volatile memory (NVM) location;
storing the value of the minimum operating voltage of the memory in the NVM location;

providing a functional circuit on the integrated circuit exclusive of the memory;

providing a first regulated voltage to the functional circuit;
providing a second regulated voltage, the second regulated voltage is greater than the first regulated voltage;

providing the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the value of the minimum operating voltage; and
providing the second regulated voltage as the operating voltage of the memory when the first regulated voltage is less than the value of the minimum operating voltage, wherein while the second regulated voltage is provided as the operating voltage of the memory, the first regulated voltage is provided to the functional circuit.

2. The method of claim 1, wherein the step of testing the memory is further characterized by the minimum operating voltage comprising one of a group consisting of minimum write voltage, minimum read voltage, and a minimum standby voltage.

3. The method of claim 1, wherein the step of providing the integrated circuit with the memory is further characterized by the memory comprising one of a group consisting of dynamic random access memory and static random access memory.

4. The method of claim 1, wherein the step of providing the NVM location is further characterized by the NVM location comprising a non-volatile register.

5. The method of claim 1, further comprising:

providing a signal in response to a desired value for the first regulated voltage being below the minimum operating voltage.

6. The method of claim 1, further comprising:

providing a controller on the integrated circuit that selects an operating value for the operating voltage of the memory; and

providing the operating voltage to the memory at a value at least as great as the minimum operating voltage in response to the operating value selected by the processor being below the minimum operating voltage.

7. The method of claim 1, further comprising providing the value of the minimum operating voltage external to the integrated circuit.

8. The method of claim 1, wherein the step of determining is further characterized as performing a test applied externally from the integrated circuit.

9. An integrated circuit, comprising:

a memory that operates using an operating voltage, wherein the memory is characterized as having a minimum operating voltage;

a memory location that stores a value representative of the minimum operating voltage;

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a first voltage regulator for supplying a first regulated voltage;

a circuit that provides a function and uses the first regulated voltage;

a second voltage regulator for supplying a second regulated voltage, wherein the second regulated voltage is greater than the first regulated voltage; and

a power supply selector that supplies the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the minimum operating voltage and supplies the second regulated voltage as the operating voltage when the first regulated voltage is below the minimum operating voltage, wherein while the second regulated voltage is supplied as the operating voltage, the circuit uses the first regulated voltage.

10. The integrated circuit of claim 9, wherein the circuit that provides a function comprises a processor, further comprising: a built-in self test (BIST) circuit, coupled to the processor, which determines the minimum operating voltage.

11. The memory of claim 9, wherein the minimum operating voltage comprises one of a group consisting of minimum retention voltage, minimum read voltage, minimum write voltage, and minimum standby voltage.

12. The memory of claim 11, wherein the minimum operating voltage comprises another one of the group consisting of minimum retention voltage, minimum read voltage, minimum write voltage, and minimum standby voltage.

13. The memory of claim 9, wherein the memory comprises one of a group consisting of a static random access memory and a dynamic random access memory.

14. The memory of claim 9, further comprising:

a processor that selects an operating value for the operating voltage of the memory; and

means for providing the operating voltage to the memory at a value at least as great as the minimum operating voltage in response to the operating value selected by the processor being below the minimum operating voltage.

15. The memory of claim 9, wherein the memory location is characterized as being a non-volatile register.

16. A method, comprising:

providing an integrated circuit with a memory that uses an operating voltage;

testing the memory to determine the operating voltage of the memory that is a minimum operating voltage;

storing, in a non-volatile manner, the value of the minimum operating voltage;

providing a functional circuit on the integrated circuit exclusive of the memory;

providing a first regulated voltage to the functional circuit;

providing a second regulated voltage, wherein the second regulated voltage is greater than the first regulated voltage;

providing the first regulated voltage as the operating voltage of the memory when the first regulated voltage is at least the value of the minimum operating voltage; and

providing the second regulated voltage as the operating voltage of the memory when the first regulated voltage is less than the value of the minimum operating voltage, wherein while the second regulated voltage is provided as the operating voltage of the memory, the first regulated voltage is provided to the functional circuit.

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FORM 19. Certificate of Compliance with Type-Volume Limitations

Form 19
July 2020

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATIONS

Case Number: 2023-2298, 2023-2354

Short Case Caption: VLSI Technology LLC v. Patent Quality Assurance LLC

Instructions: When computing a word, line, or page count, you may exclude any items listed as exempted under Fed. R. App. P. 5(c), Fed. R. App. P. 21(d), Fed. R. App. P. 27(d)(2), Fed. R. App. P. 32(f), or Fed. Cir. R. 32(b)(2).

The foregoing filing complies with the relevant type-volume limitation of the Federal Rules of Appellate Procedure and Federal Circuit Rules because it meets one of the following:

- ☒ the filing has been prepared using a proportionally-spaced typeface and includes 13,998 words.
- ☐ the filing has been prepared using a monospaced typeface and includes _____ lines of text.
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Date: 07/10/2024

Signature: /s/ Jeffrey A. Lamken

Name: Jeffrey A. Lamken

FORM 31. Certificate of Confidential Material

Form 31
July 2020

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CERTIFICATE OF CONFIDENTIAL MATERIAL

Case Number: 2023-2298, 2023-2354

Short Case Caption: VLSI Technology LLC v. Patent Quality Assurance LLC

Instructions: When computing a confidential word count, Fed. Cir. R. 25.1(d)(1)(C) applies the following exclusions:

- Only count each unique word or number once (repeated uses of the same word do not count more than once).
- For a responsive filing, do not count words marked confidential for the first time in the preceding filing.

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The foregoing document contains 137 number of unique words (including numbers) marked confidential.

- ☐ This number does not exceed the maximum of 15 words permitted by Fed. Cir. R. 25.1(d)(1)(A).
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- ☒ This number exceeds the maximum permitted by Federal Circuit Rule 25.1(d)(1), and the filing is accompanied by a motion to waive the confidentiality requirements.

Date: 07/10/2024

Signature: /s/ Jeffrey A. Lamken

Name: Jeffrey A. Lamken